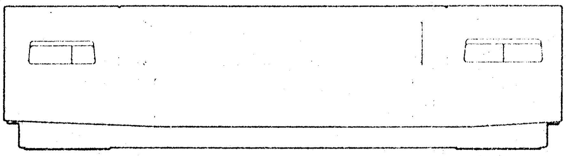
1995

MITSUBISHI

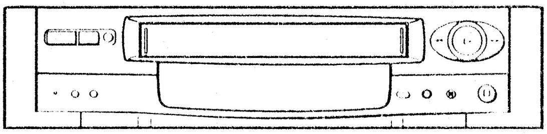
Service Manual

VIDEO CASSETTE RECORDER

VHS
PAL



HS-520



HS-521

MODEL

HS-520V(B)
HS-521V(B)
HS-521V(G)
HS-521(Y)
HS-521V(E)
HS-521V(IR)

Only cassettes marked VHS can be used with this video cassette recorder.

SPECIFICATION

Tape Format : VHS 1/2" high-density video cassette tape
Power Source : AC 230V ; 50Hz
Power Consumption : Approx. 25W
Television System : 625lines, 50fields
System CCIR I PAL [B,IR]
System CCIR B&G PAL [E,Y,G]
Video Recording System : Azimuth helical scanning system
Luminance : Frequency modulation recording
Colour Signal : Low frequency conversion subcarrier phase shift recording
Linear Audio Track : 1 track
Tape Speed : 23.39mm/sec(PAL SP mode)
11.70mm/sec(PAL LP mode)
Record/Playback Time : 240min. with E-240 cassette (PAL SP mode)
480min. with E-240 cassette (PAL LP mode)
Heads: Video : 2 rotary heads
Audio/Control : 1 stationary head
Erase : 1 full track head

Video Input : 0.75 to 1.5Vp-p, 75Ω unbalanced EURO AV socket
Audio Input : Line : –8dBs, 50kΩ unbalanced EURO AV socket
Video Output : 1.0Vp-p, 75Ω unbalanced EURO AV socket
Audio Output : –6dBs, 1kΩ unbalanced EURO AV socket
TV Tuner VHF : 47~89MHz, 104~470MHz [E]
44~89MHz, 104~300MHz [IR]
47~300MHz [Y, G]
UHF : 470~862MHz
Operating Temperature : 5°C to 40°C
RF Channel Output : Set to Channel 38 [IR]
/Channel 36 [G,B,E,Y],
(Channel 32~40 selectable)
Weight : Approx. 5.0kg
Dimensions : 380(W)×94(H)×326(D)mm [520]
380(W)×94(H)×330(D)mm [521]
Timer : 8 programmes for any channels in one month/every day/every week day
24 hour digital synchronized with oscillator frequency.
Channel Selection : 60 position Up/Down + EXT
Deck : J Deck

- Weight and dimensions shown are approximate.
- Design and specifications are subject to change without notice.

MITSUBISHI ELECTRIC

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DISASSEMBLY

Note: Any screw can be used between silver screw securing the boss of the molded parts and 669D220030 (preferred part) for replacement because they are compatible with each other.

1. Removal of Top Cover

(1) Remove the two Top Cover fastening screws (ⓐ and ⓑ) shown in Fig. 1 and remove the Top Cover in the direction shown by the arrows.

2. Removal of Front Panel

(1) Remove the Top Cover.
(Refer to Para. 1 of the DISASSEMBLY.)

(2) Unfasten seven catches (ⓒ~ⓘ), two on the top, two on the side, and three on the bottom, and remove the Front Panel in the direction shown by the arrows.

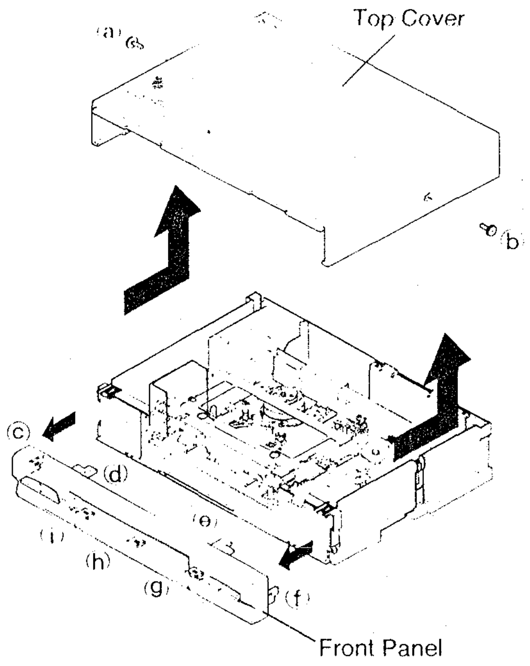

Fig. 1

DISASSEMBLY

Note: Any screw can be used between silver screw securing the boss of the molded parts and 669D220030 (preferred part) for replacement because they are compatible with each other.

1. Removal of Top Cover

(1) Remove the two Top Cover fastening screws (ⓐ and ⓑ) shown in Fig. 1 and remove the Top Cover in the direction shown by the arrows.

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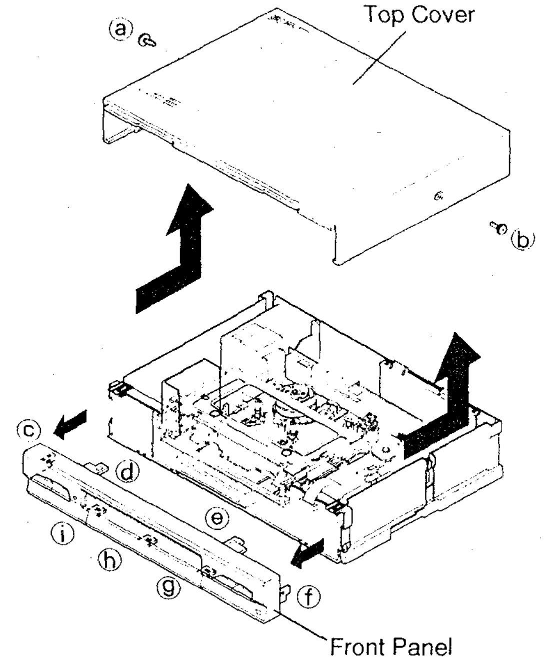


Fig. 1

4. Removal of Bottom Panel

① Remove five fastening screws (ⓐ ~ ⓔ) shown in Fig. 3.

② Push the two inside hooks (ⓕ and ⓖ), holding the Bottom Panel and slide the Bottom Panel toward the rear to remove it.

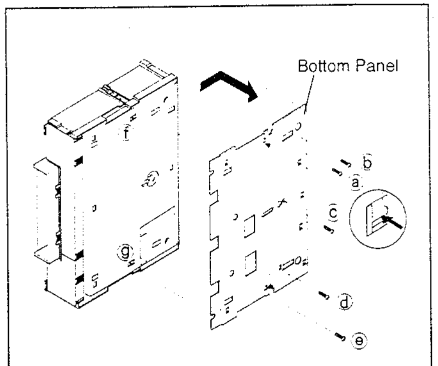

Bottom Panel
ⓐ
ⓑ
ⓒ
ⓓ
ⓔ
ⓕ
ⓖ

Fig. 3

5. Removal of Assy Deck

① Remove the Top Cover.
(Refer to Para. 1 of the DISASSEMBLY.)

② Remove the barrier.
(Refer to Para. 3 of the DISASSEMBLY.)

③ Remove the three fastening screws (ⓐ,ⓑ and ⓒ) on the bottom of the set shown in Fig. 4.

④ Remove the five screws (ⓓ~ⓗ) holding the Assy Deck, shown in Fig. 5, and disconnect the connectors ML , MM and ME .

⑤ Slowly raise slowly the Assy Deck upward to remove it.

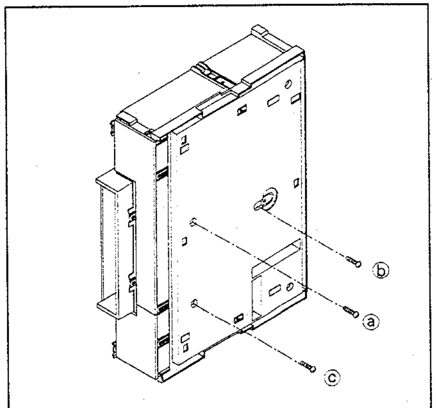


Fig. 4

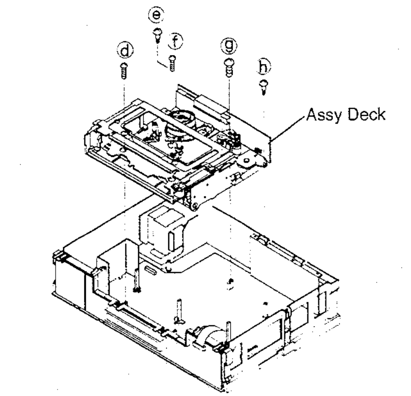


Fig. 5

HOW TO EXECUTE CIRCUIT BOARD SERVICE

CAUTION:

BEFORE ATTEMPTING TO REMOVE OR REPAIR ANY PCB, UNPLUG THE POWER CORD FROM THE A.C. SOURCE.

LOCATION OF PRINT CIRCUIT BOARDS

Note:

- Take caution when removing flat cables to prevent any contact problem.
- Connect and disconnect the flat cables at right angles to the connector and make sure that it is completely secured.
- After servicing the PCB, restore the flat cable and leads to their former state.

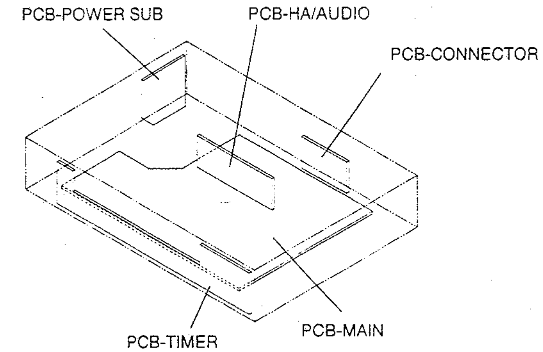

PCB-POWER SUB
PCB-HA/AUDIO
PCB-CONNECTOR
PCB-TIMER
PCB-MAIN

Fig. 6A
[HS-521]

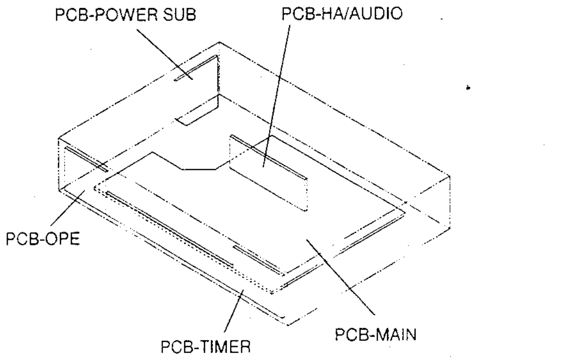

PCB-POWER SUB
PCB-HA/AUDIO
PCB-OPE
PCB-TIMER
PCB-MAIN

Fig. 6B
[HS-520]

1. PCB-MAIN

① Remove the Top Cover.
(Refer to Para. 1 of the DISASSEMBLY.)

② Remove the barrier.
(Refer to Para. 3 of the DISASSEMBLY.)
Servicing on the components side is partially possible.

③ Remove the Front Panel.
(Refer to Para. 2 of the DISASSEMBLY.)
Remove eight fastening screws referred to as ③ and ④ in Para. 5 of the DISASSEMBLY. (Do not disconnect the connector **ML**.)

④ Raise the front side of the Assy Deck upward as shown in Fig. 7 and support it with a screw driver, etc. Servicing on the components side of the PCB is now possible.

⑤ If necessary to remove PCB-MAIN completely, remove the Assy Deck. (Refer to Para. 5 of the DISASSEMBLY.) Remove all connectors on the PCB-MAIN. Remove one fastening screw (ⓐ) on the bottom and two fastening screws (ⓑ and ⓒ) on the Antenna Terminal Board shown in Fig. 8. Raise the PCB-MAIN upward to remove it.

⑥ To service the component side, remove three screws (ⓐ, ⓑ and ⓒ: 669D222090) retaining the Heat Sink shown in Fig. 9.

CAUTION:
Power regulators are damaged if the power supply is turned on without the Heat Sink installed.

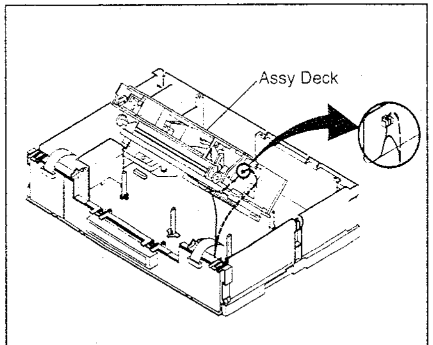


Fig. 7

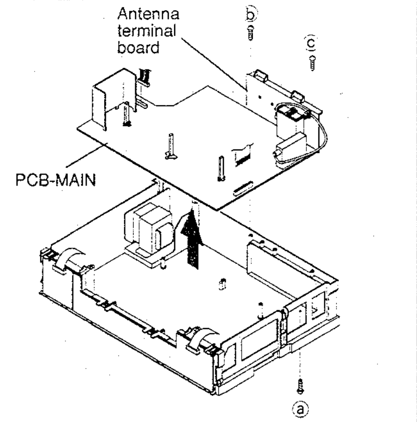


Fig. 8

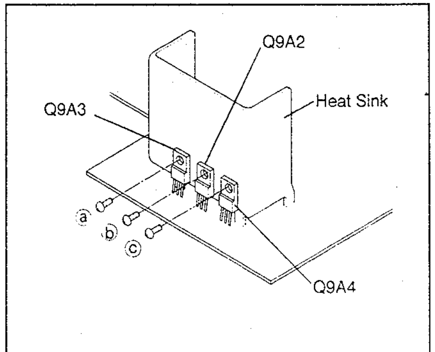


Fig. 9

2. PCB-CONNECTOR(HS-521 only)

① Remove the Top Cover.
(Refer to Para. 1 of the DISASSEMBLY.)

② Remove the barrier.
(Refer to Para. 2 of the DISASSEMBLY.)
(Servicing for the solder side of PCB-CONNECTOR is available.)

③ If it is necessary to remove the PCB-CONNECTOR, comply with the following steps.
(1) Remove the PCB-MAIN.
(Refer to the preceding paragraph.)
(2) Remove four screws (ⓐ,ⓑ,ⓒ and ⓓ), unfasten five catches (ⓔ~ⓘ) on the Antenna Terminal Board as shown in Fig.10, and remove the Antenna Terminal Board.
(3) Raise the PCB-CONNECTOR-G upward to remove it.

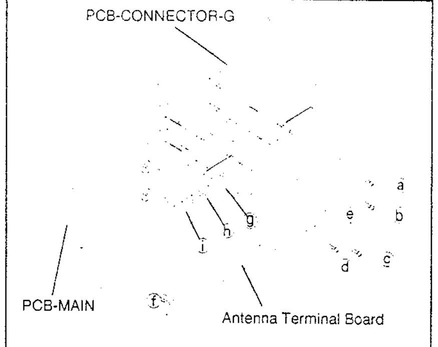


Fig. 10

3. PCB-TIMER(HS-521 only)

① Remove the Top Cover.
(Refer to Para. 1 of the DISASSEMBLY.)

② Remove the Front Panel.
(Refer to Para. 2 of the DISASSEMBLY.)

③ Remove five catches (ⓐ~ⓔ), shown in Fig. 11, then remove the PCB-TIMER.

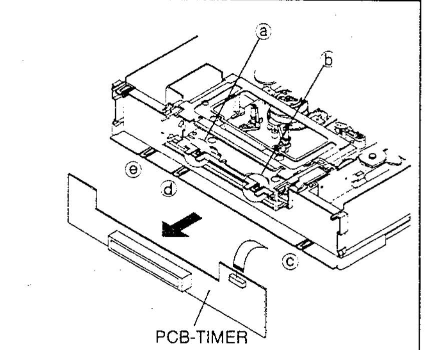


Fig. 11

4. PCB-TIMER/OPE(HS-520 only)

① Remove the Top Cover.
(Refer to Para. 1 of the DISASSEMBLY.)

② Remove the Front Panel.
(Refer to Para. 2 of the DISASSEMBLY.)

③ Remove six catches (ⓐ~ⓕ) shown in Fig. 12 to remove the PCB-TIMER OPE.

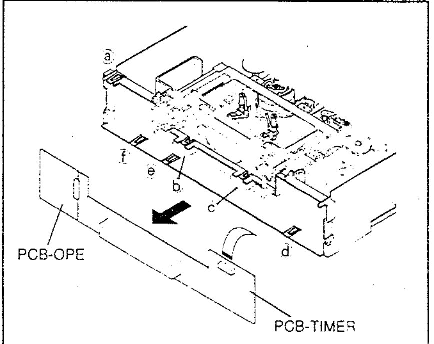


Fig. 12

1. PCB-MAIN

① Remove the Top Cover.
(Refer to Para. 1 of the DISASSEMBLY.)

② Remove the barrier.
(Refer to Para. 3 of the DISASSEMBLY.)
Servicing on the components side is partially possible.

③ Remove the Front Panel.
(Refer to Para. 2 of the DISASSEMBLY.)
Remove eight fastening screws referred to as ③ and ④ in Para. 5 of the DISASSEMBLY. (Do not disconnect the connector ML.)

④ Raise the front side of the Assy Deck upward as shown in Fig. 7 and support it with a screw driver, etc. Servicing on the components side of the PCB is now possible.

⑤ If necessary to remove PCB-MAIN completely, remove the Assy Deck. (Refer to Para. 5 of the DISASSEMBLY.) Remove all connectors on the PCB-MAIN. Remove one fastening screw (ⓐ) on the bottom and two fastening screws (ⓑ and ⓒ) on the Antenna Terminal Board shown in Fig. 8. Raise the PCB-MAIN upward to remove it.

⑥ To service the component side, remove three screws (ⓐ, ⓑ and ⓒ: 669D222090) retaining the Heat Sink shown in Fig. 9.

CAUTION:
Power regulators are damaged if the power supply is turned on without the Heat Sink installed.

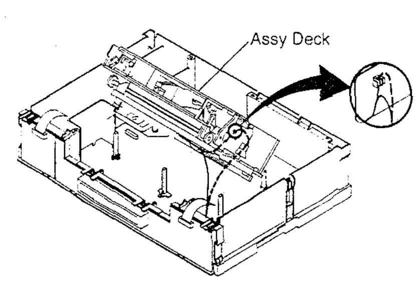


Fig. 7

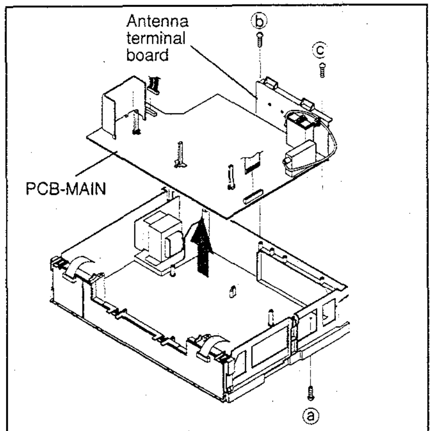


Fig. 8

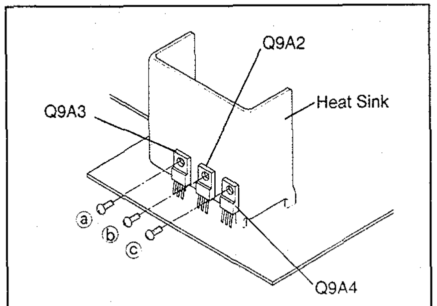


Fig. 9

2. PCB-CONNECTOR(HS-521 only)

① Remove the Top Cover.
(Refer to Para. 1 of the DISASSEMBLY.)

② Remove the barrier.
(Refer to Para. 2 of the DISASSEMBLY.)
(Servicing for the solder side of PCB-CONNECTOR is available.)

③ If it is necessary to remove the PCB-CONNECTOR, comply with the following steps.
  (1) Remove the PCB-MAIN.
  (Refer to the preceding paragraph.)
  (2) Remove four screws (ⓐ,ⓑ,ⓒ and ⓓ), unfasten five catches (ⓔ~ⓘ) on the Antenna Terminal Board as shown in Fig.10, and remove the Antenna Terminal Board.
  (3) Raise the PCB-CONNECTOR-G upward to remove it.

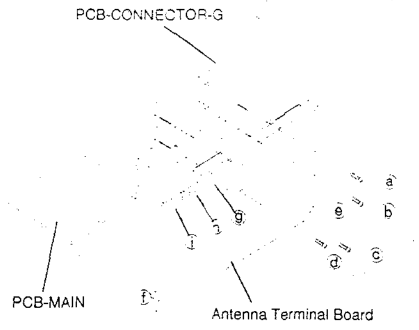


Fig. 10

3. PCB-TIMER(HS-521 only)

① Remove the Top Cover.
(Refer to Para. 1 of the DISASSEMBLY.)

② Remove the Front Panel.
(Refer to Para. 2 of the DISASSEMBLY.)

③ Remove five catches (ⓐ~ⓔ), shown in Fig. 11, then remove the PCB-TIMER.

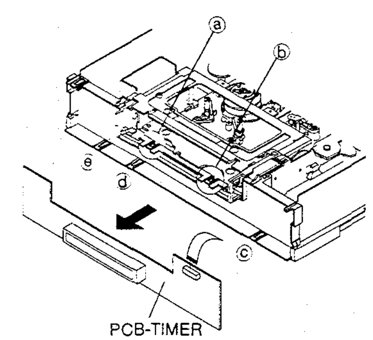


Fig. 11

4. PCB-TIMER/OPE(HS-520 only)

① Remove the Top Cover.
(Refer to Para. 1 of the DISASSEMBLY.)

② Remove the Front Panel.
(Refer to Para. 2 of the DISASSEMBLY.)

③ Remove six catches (ⓐ~ⓕ) shown in Fig. 12 to remove the PCB-TIMER OPE.

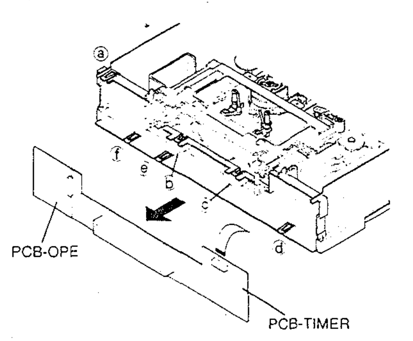


Fig. 12

HS－520V (B) : [1] HS－521V (B) : [2] HS－521V (E) : [3]
HS－521V (G) : [4] HS－521V (IR) : [5] HS－521 (Y) : [6]

	SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
	C 5A6	141P130060	CHIP CAPACITOR	B50V 560pF-K
	C 5B3	141P131030	CHIP CAPACITOR	B50V 2200pF-K
	C 5B5	141P131010	CHIP CAPACITOR	B50V 1500pF
	C 5B6	141P132000	CHIP CAPACITOR	B50V 8200pF-K
	C 5B7	141P132000	CHIP CAPACITOR	B50V 8200pF-K
	C 5D5	141P135080	CHIP CAPACITOR	F25V 0.1 μF-Z
	C 5D6	141P134010	CHIP CAPACITOR	F50V 0.047M
	C 5D8	141P133080	CHIP CAPACITOR	F50V 0.01 μF-Z
	C 5E3	141P133090	CHIP CAPACITOR	F50V 0.022M
	C 5E4	141P133090	CHIP CAPACITOR	F50V 0.022M
	C 5F0	141P134020	CHIP CAPACITOR	F50V 0.1 μF-Z
	C 5F1	154P331010	CHIP CAPACITOR	CH50V 10pF-C
	C 5F2	154P331070	CHIP CAPACITOR	CH50V 18pF-J
	C 5F3	154P330090	CHIP CAPACITOR	CH50V 8pF-C
	C 5F4	141P134010	CHIP CAPACITOR	F50V 0.047M
	C 5K0	141P133080	CHIP CAPACITOR	F50V 0.01 μF-Z
○	C 901	189P153040	C-METAL-P-FILM	AC250V 0.1MF-M
○	C 902	189P153040	C-METAL-P-FILM	AC250V 0.1MF-M
	C 9A9	141P139030	CHIP CAPACITOR	B25V 0.1 μF-K
	C 9C0	141P133080	CHIP CAPACITOR	F50V 0.01 μF-Z
	C 9C1	141P133080	CHIP CAPACITOR	F50V 0.01 μF-Z

SWITCHES

	SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
○	S 101	431C106010	SLIDE SWITCH	VTR/TV SWITCH
	S 5A0	439P033010	SWITCH	RIS MPU10101MMB0
	S 5A1	432P166010	KEY BOARD SWITCH	RESET
	S 8A1	432P089040	KEY BOARD SWITCH	STOP [1]
				PLAY [2, 3, 4, 5, 6]
	S 8A2	432P089040	KEY BOARD SWITCH	POWER [1]
	S 8A2	432P089020	KEY BOARD SWITCH	POWER [2, 3, 4, 5, 6]
	S 8A3	432P089020	KEY BOARD SWITCH	FF [1]
	S 8A3	432P089040	KEY BOARD SWITCH	FF [2, 3, 4, 5, 6]
	S 8A4	432P089040	KEY BOARD SWITCH	AUTO SET UP/JUST CLOCK [2, 3, 4, 5]
	S 8B1	432P089040	KEY BOARD SWITCH	PLAY [1]
				STOP [2, 3, 4, 5, 6]
	S 8B2	432P089040	KEY BOARD SWITCH	EJECT [1]
	S 8B2	432P089020	KEY BOARD SWITCH	EJECT [2, 3, 4, 5, 6]
	S 8B3	432P089020	KEY BOARD SWITCH	REW [1]
	S 8B3	432P089040	KEY BOARD SWITCH	REW [2, 3, 4, 5, 6]
	S 8C1	432P089020	KEY BOARD SWITCH	REC/OTR [1]
	S 8C1	432P089040	KEY BOARD SWITCH	REC/OTR [2, 3, 4, 5, 6]
	S 8C2	432P089040	KEY BOARD SWITCH	ONE KEY PROGRAM
	S 8C3	432P089040	KEY BOARD SWITCH	CH-DOWN
	S 8D1	432P089020	KEY BOARD SWITCH	PAUSE [1]
	S 8D1	432P089040	KEY BOARD SWITCH	PAUSE [2, 3, 4, 5, 6]
	S 8D2	432P089040	KEY BOARD SWITCH	RENT PB [1]
	S 8D2	432P089020	KEY BOARD SWITCH	RENT PB [2, 3, 4, 5, 6]
	S 8D3	432P089040	KEY BOARD SWITCH	CH-UP

MISCELLANEOUS

	SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
○	CU 01	295P406030	RF CONVERTER	[1, 2]
○	CU 01	295P406020	RF CONVERTER	[3, 4, 6]
○	CU 01	295P406040	RF CONVERTER	[5]
	F 901	283D046080	FUSE	T630MA
	F 902	283D047050	FUSE	T2.5A
	F 903	283D047050	FUSE	T2.5A
	J 2301	451C058020	CONNECTOR	21P [2, 3, 4, 5, 6]
	J 2302	451C058020	CONNECTOR	21P [2, 3, 4, 5, 6]
	M 470	288P126010	MOTOR CAPSTAN	F20KB79
	M 570	288P088060	MOTOR DRUM	DC12V 3.3W
○	M 571	288P145010	MOTOR LOADING	DC12V 3W
○	MK TK	243C165070	LEAD CARD	29P L200(MK-TK)
	P 5A0	286P010010	BUZZER	PKM22EPT-2001
○	S 570	439D039010	MODE SELECT SWICH	(J)
	T 370	460P060060	A/C HEAD	
	T 371	460P153010	FULL ERASE HEAD	FE HEAD
	TU 01	295P194020	TUNER TV	TERB1-044A [1, 2]
	TU 01	295P418010	TUNER	TEKE4-071A [3, 4, 6]
○	TU 01	295P297020	TUNER TV	TERE1-0N3A [5]
○	V 8A0	253P119010	TUBE FLUOR	10-MT-79GK
	X 2A0	285P083010	CRYSTAL RESONATOR	4.43362MHz
○	X 4A0	285P248010	CRYSTAL RESONATOR	4.43MHz
	X 501	285P084010	CRYSTAL RESONATOR	17.7345MHz
	X 5A0	285P054030	CRYSTAL RESONATOR	32.8kHz
	X 5A1	285P235010	CRYSTAL RESONATOR	8.3886MHz
	Z 8A0	939P580010	PREAMP UNIT	TFMT 5330

PRINTED CIRCUIT BOARD ASSY'S

	SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
○		928C878001	CONNECTOR PCB ASSY	[2, 3, 5]
○		928C878002	CONNECTOR PCB ASSY	[4, 6]
○		927B875001	HA/AUDIO PCB ASSY	[1, 2, 5]
○		927B875002	HA/AUDIO PCB ASSY	[3, 4, 6]
○		927B897006	MAIN PCB ASSY	[1]
○		927B897001	MAIN PCB ASSY	[2]
○		927B897004	MAIN PCB ASSY	[3]
○		927B897002	MAIN PCB ASSY	[4]
○		927B897005	MAIN PCB ASSY	[5]
○		927B897003	MAIN PCB ASSY	[6]
○		927B799013	TIMER PCB ASSY	[1]
○		927B876001	TIMER PCB ASSY	[2]
○		927B876004	TIMER PCB ASSY	[3]
○		927B876002	TIMER PCB ASSY	[4]
○		927B876006	TIMER PCB ASSY	[5]
○		927B876003	TIMER PCB ASSY	[6]

HS-520V (B) : [1] HS-521V (B) : [2] HS-521V (E) : [3]
HS-521V (G) : [4] HS-521V (IR) : [5] HS-521 (Y) : [6]

SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
R 2K7	103P401060	CHIP RESISTOR	1/10W 180Ω-J
R 2K8	103P401070	CHIP RESISTOR	1/10W 220Ω-J
R 2M5	103P403090	CHIP RESISTOR	1/10W 15kΩ-J [1, 2, 3, 5]
R 2M6	103P404050	CHIP RESISTOR	1/10W 47kΩ-J [1, 2, 3, 5]
R 2N4	103P401080	CHIP RESISTOR	1/10W 270Ω-J
R 2N8	103P401080	CHIP RESISTOR	1/10W 270Ω-J
R 2N9	103P404090	CHIP RESISTOR	1/10W 100kΩ-J
R 2P2	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 2P3	103P402030	CHIP RESISTOR	1/10W 680Ω-J
R 2P5	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 2P7	103P403010	CHIP RESISTOR	1/10W 3.3kΩ-J
R 2R1	103P401080	CHIP RESISTOR	1/10W 270Ω-J
R 2R4	103P403010	CHIP RESISTOR	1/10W 3.3kΩ-J
R 2R6	103P404010	CHIP RESISTOR	1/10W 22kΩ-J
R 2S3	103P401080	CHIP RESISTOR	1/10W 270Ω-J
R 2S5	103P402020	CHIP RESISTOR	1/10W 560Ω-J
R 2T1	103P402070	CHIP RESISTOR	1/10W 1.5kΩ-J
R 2T2	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 2T3	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 2T4	103P409050	CHIP RESISTOR	0.1W 0Ω (2125) [3, 4, 6]
R 2T5	103P409050	CHIP RESISTOR	0.1W 0Ω (2125) [3, 4, 6]
R 2T6	103P402090	CHIP RESISTOR	1/10W 2.2kΩ-J
R 2T7	103P473060	CHIP RESISTOR	1/10W 3kΩ-F
R 2T8	103P403030	CHIP RESISTOR	1/10W 4.7kΩ-J [1, 2, 5]
R 2T8	103P403040	CHIP RESISTOR	1/10W 5.6kΩ-J [3, 4, 6]
R 2T9	103P403040	CHIP RESISTOR	1/10W 5.6kΩ-J
R 2U0	103P402000	CHIP RESISTOR	1/10W 390Ω-J[1, 2, 5]
R 2U0	103P409050	CHIP RESISTOR	0.1W 0Ω (2125) [3, 4, 6]
R 2V0	103P401070	CHIP RESISTOR	1/10W 220Ω-J [2, 3, 4, 5]
R 2V1	103P402050	CHIP RESISTOR	1/10W 1kΩ-J [2, 3, 4, 5]
R 311	103P404030	CHIP RESISTOR	1/10W 33kΩ-J
R 312	103P401080	CHIP RESISTOR	1/10W 270Ω-J[1, 2, 5]
R 313	103P401030	CHIP RESISTOR	1/10W 100Ω-J
R 315	103P403030	CHIP RESISTOR	1/10W 4.7kΩ-J
R 316	103P406010	CHIP RESISTOR	1/10W 1MΩ-J
R 317	103P404020	CHIP RESISTOR	1/10W 27kΩ-J
R 318	103P403080	CHIP RESISTOR	1/10W 12kΩ-J
R 319	103P403040	CHIP RESISTOR	1/10W 5.6kΩ-J
R 320	103P402040	CHIP RESISTOR	1/10W 820Ω-J
R 325	103P474080	CHIP RESISTOR	1/10W 9.1K
R 326	103P401050	CHIP RESISTOR	1/10W 150Ω-J
R 327	103P402090	CHIP RESISTOR	1/10W 2.2kΩ-J
R 328	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
R 330	103P404000	CHIP RESISTOR	1/10W 18kΩ-J
R 331	103P404020	CHIP RESISTOR	1/10W 27kΩ-J
R 332	103P403090	CHIP RESISTOR	1/10W 15kΩ-J
R 334	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 337	103P401090	CHIP RESISTOR	1/10W 330Ω-J[1, 2, 5]
R 338	103P473080	CHIP RESISTOR	1/10W 3.6kΩ-F
R 339	103P473060	CHIP RESISTOR	1/10W 3kΩ-F
R 340	103P404000	CHIP RESISTOR	1/10W 18kΩ-J
R 3A0	103P402070	CHIP RESISTOR	1/10W 1.5kΩ-J
R 3A1	103P403010	CHIP RESISTOR	1/10W 3.3kΩ-J
R 3A2	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 3A3	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 3A4	103P403010	CHIP RESISTOR	1/10W 3.3kΩ-J
R 3A5	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 3A6	103P478020	CHIP RESISTOR	1/10W 240kΩ-F
R 3B0	103P404040	CHIP RESISTOR	1/10W 39kΩ-J [1, 2, 3, 5]
R 3B1	103P404040	CHIP RESISTOR	1/10W 39kΩ-J[2, 3, 5]
R 3B2	103P409050	CHIP RESISTOR	0.1W 0Ω (2125) [1, 2, 3, 5]
R 3B2	103P402060	CHIP RESISTOR	1/10W 1.2kΩ-J [4, 6]
R 3B3	103P403030	CHIP RESISTOR	1/10W 4.7kΩ-J
R 3B8	103P403010	CHIP RESISTOR	1/10W 3.3kΩ-J [1, 2, 3, 5]
R 4A0	103P404090	CHIP RESISTOR	1/10W 100kΩ-J
R 4A5	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 4A9	103P403030	CHIP RESISTOR	1/10W 4.7kΩ-J
R 4B0	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 4B2	103P404000	CHIP RESISTOR	1/10W 18kΩ-J
R 4B4	103P404030	CHIP RESISTOR	1/10W 33kΩ-J
R 4B5	103P405050	CHIP RESISTOR	1/10W 330kΩ-J
R 4B6	103P404060	CHIP RESISTOR	1/10W 56kΩ-J
R 4B7	103P405030	CHIP RESISTOR	1/10W 220kΩ-J
R 4B8	103P404040	CHIP RESISTOR	1/10W 39kΩ-J
R 4B9	103P405010	CHIP RESISTOR	1/10W 150kΩ-J
R 4C0	103P405030	CHIP RESISTOR	1/10W 220kΩ-J
R 4C1	103P405010	CHIP RESISTOR	1/10W 150kΩ-J
R 4C3	103P404040	CHIP RESISTOR	1/10W 39kΩ-J
R 4C6	103P405050	CHIP RESISTOR	1/10W 330kΩ-J
R 4C7	103P404090	CHIP RESISTOR	1/10W 100kΩ-J
R 4C8	103P402090	CHIP RESISTOR	1/10W 2.2kΩ-J
R 4C9	103P406010	CHIP RESISTOR	1/10W 1MΩ-J
R 4D0	103P405000	CHIP RESISTOR	1/10W 120kΩ-J
R 4D1	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 4D2	103P404060	CHIP RESISTOR	1/10W 56kΩ-J
R 4D3	103P403020	CHIP RESISTOR	1/10W 3.9kΩ-J
R 4D4	103P405040	CHIP RESISTOR	1/10W 270kΩ-J
R 4D5	103P405000	CHIP RESISTOR	1/10W 120kΩ-J
R 4D6	103P404000	CHIP RESISTOR	1/10W 18kΩ-J
R 4D7	103P404010	CHIP RESISTOR	1/10W 22kΩ-J
R 4D8	103P404030	CHIP RESISTOR	1/10W 33kΩ-J
R 4D9	103P403060	CHIP RESISTOR	1/10W 8.2kΩ-J
R 4E1	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 4E2	103P472070	CHIP RESISTOR	1/10W 1.2kΩ-F
R 4E3	103P472070	CHIP RESISTOR	1/10W 1.2kΩ-F
R 4E6	103P404060	CHIP RESISTOR	1/10W 56kΩ-J
R 4E7	103P403030	CHIP RESISTOR	1/10W 4.7kΩ-J
R 4E9	103P404020	CHIP RESISTOR	1/10W 27kΩ-J
R 4F0	103P404050	CHIP RESISTOR	1/10W 47kΩ-J
R 4F1	103P404090	CHIP RESISTOR	1/10W 100kΩ-J

HS-520V (B) : [1] HS-521V (B) : [2] HS-521V (E) : [3]
HS-521V (G) : [4] HS-521V (IR) : [5] HS-521 (Y) : [6]

SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
R 4F2	103P402060	CHIP RESISTOR	1/10W 1.2kΩ-J
R 4S5	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 4S6	103P404000	CHIP RESISTOR	1/10W 18kΩ-J
R 4S7	103P409090	CHIP RESISTOR	1/10W 75Ω-J
R 4S9	103P403000	CHIP RESISTOR	1/10W 2.7kΩ-J
R 4Z4	103P404090	CHIP RESISTOR	1/10W 100kΩ-J
R 503	103P403080	CHIP RESISTOR	1/10W 12kΩ-J
R 505	103P402030	CHIP RESISTOR	1/10W 680Ω-J
R 506	103P472070	CHIP RESISTOR	1/10W 1.2kΩ-F
R 508	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
R 509	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 510	103P403010	CHIP RESISTOR	1/10W 3.3kΩ-J
R 512	103P401090	CHIP RESISTOR	1/10W 330Ω-J
R 513	103P401070	CHIP RESISTOR	1/10W 220Ω-J
R 520	103P402090	CHIP RESISTOR	1/10W 2.2kΩ-J
R 521	103P404030	CHIP RESISTOR	1/10W 33kΩ-J
R 527	103P404000	CHIP RESISTOR	1/10W 18kΩ-J
R 528	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 530	103P409050	CHIP RESISTOR	0.1W 0Ω (2125) [1, 2, 5]
R 530	103P402000	CHIP RESISTOR	1/10W 390Ω-J[3, 4, 6]
R 532	103P403080	CHIP RESISTOR	1/10W 12kΩ-J[3, 4, 6]
R 551	103P402090	CHIP RESISTOR	1/10W 2.2kΩ-J [2, 3, 4, 5]
R 552	103P406010	CHIP RESISTOR	1/10W 1MΩ-J [2, 3, 4, 5]
R 553	103P404090	CHIP RESISTOR	1/10W 100kΩ-J [2, 3, 4, 5]
R 554	103P403050	CHIP RESISTOR	1/10W 6.8kΩ-J [2, 3, 4, 5]
○ R 555	103P406020	CHIP METAL	1/10W 1.2MΩ-J [2, 3, 4, 5]
R 556	103P403050	CHIP RESISTOR	1/10W 6.8kΩ-J [2, 3, 4, 5]
○ R 557	103P406020	CHIP METAL	1/10W 1.2MΩ-J [2, 3, 4, 5]
R 558	103P403070	CHIP RESISTOR	1/10W 10kΩ-J [2, 3, 4, 5]
R 559	103P403070	CHIP RESISTOR	1/10W 10kΩ-J [2, 3, 4, 5]
R 5A0	103P404030	CHIP RESISTOR	1/10W 33kΩ-J
R 5A1	103P403030	CHIP RESISTOR	1/10W 4.7kΩ-J
R 5A2	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 5A3	103P404030	CHIP RESISTOR	1/10W 33kΩ-J
R 5A5	103P402010	CHIP RESISTOR	1/10W 470Ω-J
R 5A6	103P404030	CHIP RESISTOR	1/10W 33kΩ-J
R 5A7	103P402030	CHIP RESISTOR	1/10W 680Ω-J
R 5A8	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 5A9	103P401070	CHIP RESISTOR	1/10W 220Ω-J
R 5B0	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 5B1	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 5B2	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 5C3	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 5C4	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 5C5	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 5D0	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 5D2	103P403080	CHIP RESISTOR	1/10W 12kΩ-J
R 5D3	103P404000	CHIP RESISTOR	1/10W 18kΩ-J
R 5D4	103P404000	CHIP RESISTOR	1/10W 18kΩ-J
R 5D6	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 5D8	103P406090	CHIP METAL	1/10W 4.7MΩ-K
R 5D9	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 5E0	103P404050	CHIP RESISTOR	1/10W 47kΩ-J
R 5E1	103P478020	CHIP RESISTOR	1/10W 240kΩ-F
R 5E2	103P477050	CHIP RESISTOR	1/10W 120K
R 5E3	103P476080	CHIP RESISTOR	1/10W 62kΩ-F
R 5E4	103P476000	CHIP RESISTOR	1/10W 30kΩ-F
R 5E5	103P404090	CHIP RESISTOR	1/10W 100kΩ-J
R 5E6	103P475030	CHIP RESISTOR	1/10W 15kΩ-F
R 5E7	103P476070	CHIP RESISTOR	1/10W 56kΩ-F
R 5E8	103P405030	CHIP RESISTOR	1/10W 220kΩ-J
R 5E9	103P406010	CHIP RESISTOR	1/10W 1MΩ-J
R 5F0	103P405070	CHIP RESISTOR	1/10W 470kΩ-J
R 5F1	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 5F6	103P403020	CHIP RESISTOR	1/10W 3.9kΩ-J
R 5F8	103P403020	CHIP RESISTOR	1/10W 3.9kΩ-J
R 5G0	103P404010	CHIP RESISTOR	1/10W 22kΩ-J
R 5G1	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 5G4	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 5G5	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 5G7	103P404080	CHIP RESISTOR	1/10W 82kΩ-J[1, 2, 5]
R 5G9	103P403050	CHIP RESISTOR	1/10W 6.8kΩ-J
R 5H0	103P403050	CHIP RESISTOR	1/10W 6.8kΩ-J
R 5H1	103P404090	CHIP RESISTOR	1/10W 100kΩ-J
R 5H2	103P406090	CHIP METAL	1/10W 4.7MΩ-K
R 5H3	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 5H5	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 5H7	103P404050	CHIP RESISTOR	1/10W 47kΩ-J
R 5H8	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 5J0	103P404090	CHIP RESISTOR	1/10W 100kΩ-J
R 5J1	103P404060	CHIP RESISTOR	1/10W 56kΩ-J
R 5J2	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 5J3	103P403000	CHIP RESISTOR	1/10W 2.7kΩ-J
R 5J5	103P404040	CHIP RESISTOR	1/10W 39kΩ-J
R 5J6	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 5J8	103P403080	CHIP RESISTOR	1/10W 12kΩ-J
R 5K3	103P404030	CHIP RESISTOR	1/10W 33kΩ-J[2, 4, 5]
R 5K7	103P406010	CHIP RESISTOR	1/10W 1MΩ-J
R 5L1	103P404010	CHIP RESISTOR	1/10W 22kΩ-J
R 5L2	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 5P0	103P403030	CHIP RESISTOR	1/10W 4.7kΩ-J
R 5X0	103P409050	CHIP RESISTOR	0.1W 0Ω (2125) [2, 3, 4, 5]
R 5X1	103P409050	CHIP RESISTOR	0.1W 0Ω (2125) [1, 2, 5]
R 5X7	103P406010	CHIP RESISTOR	1/10W 1MΩ-J
R 901	109D036040	COMPOSITION	1/2W 8.2MΩ-K
R 9A3	109P052010	FUSE	1/4W 100Ω-J
R 9A5	103P403090	CHIP RESISTOR	1/10W 15kΩ-J
R 9A6	103P476060	CHIP METAL	1/10W 51kΩ-F
R 9A7	103P476030	CHIP RESISTOR	1/10W 39kΩ-F
R 9A9	103P475020	CHIP RESISTOR	1/10W 13kΩ-F [1, 2]

SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
R 9A9	103P475010	CHIP RESISTOR	1/10W 12kΩ-F [3, 4, 5, 6]
R 9B0	103P475030	CHIP RESISTOR	1/10W 15kΩ-F
R 9B1	109P052050	FUSE	1/4W 6.8Ω-J
R 9B3	103P405080	CHIP RESISTOR	1/10W 560kΩ-J
R 9B5	103P404030	CHIP RESISTOR	1/10W 33kΩ-J
R 9B7	103P398050	FUSE	1/2W 2.7Ω-J [1, 2]
R 9C3	103P403020	CHIP RESISTOR	1/10W 3.9kΩ-J
R 9C7	103P378090	FUSE	1/4W 5.6Ω-J [1]
RJ 3	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 5	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 7	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 8	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 9	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 10	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 11	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 12	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 13	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 14	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ 15	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ101	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ102	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ103	103P409050	CHIP RESISTOR	0.1W 0Ω (2125) [1, 2, 5]
RJ104	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ105	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ106	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ109	103P409050	CHIP RESISTOR	0.1W 0Ω (2125) [3, 4, 6]
RJ201	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ202	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ203	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ204	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ205	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ206	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ207	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ208	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ209	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ210	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ211	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ212	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ216	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ220	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ221	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ222	103P409050	CHIP RESISTOR	0.1W 0Ω (2125) [1, 2, 3, 5]
RJ227	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ231	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ232	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ233	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ401	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ402	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ403	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ404	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ405	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)

SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
RJ501	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ502	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ503	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ504	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ505	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ506	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ507	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ508	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ509	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ510	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ511	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ512	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ513	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ514	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ515	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ516	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ517	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ518	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ519	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ520	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ521	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ522	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ523	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ524	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
RJ525	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)

CAPACITORS AND TRIMMERS

SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
C 102	141P132010	CHIP CAPACITOR	B50V 0.01μF-K
C 104	141P132010	CHIP CAPACITOR	B50V 0.01μF-K
C 105	141P132010	CHIP CAPACITOR	B50V 0.01μF-K
C 106	154P331010	CHIP CAPACITOR	CH50V 10pF-C
C 107	141P132010	CHIP CAPACITOR	B50V 0.01μF-K
C 108	141P139030	CHIP CAPACITOR	B25V 0.1μF-K
C 109	141P132010	CHIP CAPACITOR	B50V 0.01μF-K
C 114	141P132010	CHIP CAPACITOR	B50V 0.01μF-K
C 117	154P331050	CHIP CAPACITOR	CH50V 15pF-J
C 118	141P132010	CHIP CAPACITOR	B50V 0.01μF-K
C 119	154P321060	CHIP CAPACITOR	SL50V 15pF-J [1, 2]
C 119	154P321080	CHIP CAPACITOR	SL50V 18pF-J [3, 4, 6]
C 119	154P322060	CHIP CAPACITOR	SL50V 39pF-J [5]
C 122	141P133080	CHIP CAPACITOR	F50V 0.01μF-Z [3, 4, 6]
C 124	141P134010	CHIP CAPACITOR	F50V 0.047M [3, 4, 6]
C 126	141P131020	CHIP CAPACITOR	B50V 1800pF-K[3, 4, 6]
C 127	154P325080	CHIP CAPACITOR	SL50V 820pF [3, 4, 6]
C 130	141P130060	CHIP CAPACITOR	B50V 560pF-K
C 131	141P130060	CHIP CAPACITOR	B50V 560pF-K
C 132	141P137080	CHIP CAPACITOR	B25V 0.047M
C 201	141P139030	CHIP CAPACITOR	B25V 0.1μF-K
C 202	141P136030	CHIP CAPACITOR	F16V 1μF-Z
C 203	141P136030	CHIP CAPACITOR	F16V 1μF-Z
C 204	154P323000	CHIP CAPACITOR	SL50V 56pF-J [1, 2, 5]
C 204	154P322060	CHIP CAPACITOR	SL50V 39pF-J [3, 4, 6]
C 205	154P323000	CHIP CAPACITOR	SL50V 56pF-J [1, 2, 5]
C 205	154P322060	CHIP CAPACITOR	SL50V 39pF-J [3, 4, 6]

SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
C 210	141P139030	CHIP CAPACITOR	B25V 0.1μF-K
C 212	141P132000	CHIP CAPACITOR	B50V 8200pF-K
C 213	154P333010	CHIP CAPACITOR	CH50V 68pF-J
C 214	141P139030	CHIP CAPACITOR	B25V 0.1μF-K
C 215	154P323000	CHIP CAPACITOR	SL50V 56pF-J
C 216	154P322040	CHIP CAPACITOR	SL50V 33pF-J
C 217	154P323040	CHIP CAPACITOR	SL50V 82pF-J
C 218	154P324020	CHIP CAPACITOR	SL50V 180pF-J
C 219	141P132000	CHIP CAPACITOR	B50V 8200pF-K
C 220	141P137080	CHIP CAPACITOR	B25V 0.047M
C 221	141P130090	CHIP CAPACITOR	B50V 1000pF-K
C 222	141P132000	CHIP CAPACITOR	B50V 8200pF-K
C 223	141P130090	CHIP CAPACITOR	B50V 1000pF-K
C 224	141P130090	CHIP CAPACITOR	B50V 1000pF-K
C 230	141P132000	CHIP CAPACITOR	B50V 8200pF-K[3, 4, 6]
C 231	141P139030	CHIP CAPACITOR	B25V 0.1μF-K
C 275	141P133080	CHIP CAPACITOR	F50V 0.01μF-Z
C 276	141P130090	CHIP CAPACITOR	B50V 1000pF-K
C 2C1	141P132000	CHIP CAPACITOR	B50V 8200pF-K
C 2C2	154P322060	CHIP CAPACITOR	SL50V 39pF-J
C 2C3	154P325000	CHIP CAPACITOR	SL50V 390pF-J
C 2C4	154P324020	CHIP CAPACITOR	SL50V 180pF-J
C 2C6	141P132000	CHIP CAPACITOR	B50V 8200pF-K
C 2C8	154P323080	CHIP CAPACITOR	SL50V 120pF-J
C 2C9	154P324000	CHIP CAPACITOR	SL50V 150pF-J
C 2D1	154P322080	CHIP CAPACITOR	SL50V 47pF-J
C 2D3	141P132000	CHIP CAPACITOR	B50V 8200pF-K
C 2D4	154P324040	CHIP CAPACITOR	SL50V 220pF-J
C 2D5	154P321020	CHIP CAPACITOR	SL50V 10pF-C
C 2D7	154P325000	CHIP CAPACITOR	SL50V 390pF-J
C 2E0	154P322080	CHIP CAPACITOR	SL50V 47pF-J [1, 2, 5]
C 2E1	154P322000	CHIP CAPACITOR	SL50V 22pF-J
C 2E3	141P132000	CHIP CAPACITOR	B50V 8200pF-K
C 2E4	141P137040	CHIP CAPACITOR	B25V 0.022M
C 2F4	141P137080	CHIP CAPACITOR	B25V 0.047M
C 2F7	141P139030	CHIP CAPACITOR	B25V 0.1μF-K
C 2G2	154P321080	CHIP CAPACITOR	SL50V 18pF-J [3, 4, 6]
C 2G5	141P132000	CHIP CAPACITOR	B50V 8200pF-K
C 2G7	141P132000	CHIP CAPACITOR	B50V 8200pF-K
C 2H0	154P322020	CHIP CAPACITOR	SL50V 27pF-J
C 2H1	154P322040	CHIP CAPACITOR	SL50V 33pF-J
C 2H2	154P320080	CHIP CAPACITOR	SL50V 6pF-C
C 2H3	154P322080	CHIP CAPACITOR	SL50V 47pF-J
C 2H7	141P132000	CHIP CAPACITOR	B50V 8200pF-K
C 2J8	154P323000	CHIP CAPACITOR	SL50V 56pF-J [1, 2, 3, 5]
C 2P2	154P322060	CHIP CAPACITOR	SL50V 39pF-J
C 2P3	154P323020	CHIP CAPACITOR	SL50V 68pF-J
C 2R0	154P322020	CHIP CAPACITOR	SL50V 27pF-J
C 2R1	154P322000	CHIP CAPACITOR	SL50V 22pF-J [1, 2, 5]
C 2R2	141P137040	CHIP CAPACITOR	B25V 0.022M
C 2R3	141P137080	CHIP CAPACITOR	B25V 0.047M
C 2R4	154P323060	CHIP CAPACITOR	SL50V 100pF-J
C 2R5	141P139030	CHIP CAPACITOR	B25V 0.1μF-K
C 2R7	141P132000	CHIP CAPACITOR	B50V 8200pF-K

SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
C 2Z0	154P324040	CHIP CAPACITOR	SL50V 220pF-J [1]
C 2Z1	141P137040	CHIP CAPACITOR	B25V 0.022M [1]
C 2Z2	154P324040	CHIP CAPACITOR	SL50V 220pF-J [1]
C 2Z3	141P131040	CHIP CAPACITOR	B50V 2700pF-K [1]
C 310	141P132000	CHIP CAPACITOR	B50V 8200pF-K
C 311	141P130080	CHIP CAPACITOR	B50V 820pF-K
C 318	141P131080	CHIP CAPACITOR	B50V 5600pF-K
C 328	141P130060	CHIP CAPACITOR	B50V 560pF-K
C 331	141P132010	CHIP CAPACITOR	B50V 0.01μF-K
C 338	141P132000	CHIP CAPACITOR	B50V 8200pF-K
C 345	141P130090	CHIP CAPACITOR	B50V 1000pF-K
C 3A2	141P138040	CHIP CAPACITOR	B25V 0.15MK
C 3A3	141P138040	CHIP CAPACITOR	B25V 0.15MK
C 3B4	141P132000	CHIP CAPACITOR	B50V 8200pF-K
C 4A3	141P137070	CHIP CAPACITOR	B25V 0.039μF-K
C 4A5	141P132000	CHIP CAPACITOR	B50V 8200pF-K
C 4A6	154P332010	CHIP CAPACITOR	CH50V 27pF-J
C 4A7	154P324020	CHIP CAPACITOR	SL50V 180pF-J
C 4A9	141P131060	CHIP CAPACITOR	B50V 3900pF-K
C 4B3	141P133090	CHIP CAPACITOR	F50V 0.022M
C 4B4	141P133080	CHIP CAPACITOR	F50V 0.01μF-Z
C 4B6	141P131010	CHIP CAPACITOR	B50V 1500pF
C 4C1	141P131050	CHIP CAPACITOR	B50V 3300pF-K
C 4C2	141P139030	CHIP CAPACITOR	B25V 0.1μF-K
C 4C3	141P139010	CHIP CAPACITOR	B25V 0.068MK
C 4C4	141P131080	CHIP CAPACITOR	B50V 5600pF-K
C 4C5	141P131080	CHIP CAPACITOR	B50V 5600pF-K
C 4C6	141P139000	CHIP CAPACITOR	B25V 0.056μF-K
C 4C9	141P130090	CHIP CAPACITOR	B50V 1000pF-K
C 4D5	141P130090	CHIP CAPACITOR	B50V 1000pF-K
C 4E0	141P130090	CHIP CAPACITOR	B50V 1000pF-K
C 4G7	154P333050	CHIP CAPACITOR	CH50V 100pF-J
C 4G8	154P333050	CHIP CAPACITOR	CH50V 100pF-J
C 4J0	154P331070	CHIP CAPACITOR	CH50V 18pF-J
C 501	154P330040	CHIP CAPACITOR	CJ50V 3pF-C
C 502	154P330040	CHIP CAPACITOR	CJ50V 3pF-C
C 505	154P331090	CHIP CAPACITOR	CH50V 22pF-J
C 507	154P331090	CHIP CAPACITOR	CH50V 22pF-J
C 510	141P137080	CHIP CAPACITOR	B25V 0.047M
C 512	141P133080	CHIP CAPACITOR	F50V 0.01μF-Z
C 514	141P133080	CHIP CAPACITOR	F50V 0.01μF-Z
C 525	154P322080	CHIP CAPACITOR	SL50V 47pF-J [3, 4, 6]
C 551	154P324000	CHIP CAPACITOR	SL50V 150pF-J [2, 3, 4, 5]
C 552	141P137060	CHIP CAPACITOR	B50V 0.033μF-K [2, 3, 4, 5]
C 554	141P131030	CHIP CAPACITOR	B50V 2200pF-K [2, 3, 4, 5]
C 555	141P137060	CHIP CAPACITOR	B50V 0.033μF-K [2, 3, 4, 5]
C 556	141P132010	CHIP CAPACITOR	B50V 0.01μF-K [2, 3, 4, 5]
C 5A0	189P197020	C-ELE-DOUBLE-LAYER	FM0H473Z
C 5A3	154P331070	CHIP CAPACITOR	CH50V 18pF-J
C 5A4	141P133080	CHIP CAPACITOR	F50V 0.01μF-Z
C 5A5	141P133080	CHIP CAPACITOR	F50V 0.01μF-Z

3. ELECTRICAL PARTS

INTEGRATED CIRCUITS

SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
IC101	270P184010	IC	M52318SP
IC102	266P192010	IC	LA7910 [3, 4, 5, 6]
IC103	272P654010	IC	M51497L [3, 4, 6]
IC201	270P183010	IC	BA7184S
IC2A0	270P195010	IC	LA7346
IC2A1	272P702010	IC	LC8992
IC2A3	272P265010	IC	BA7021 [1, 2, 3, 5]
IC2301	270P167020	IC	LA7156-S [4, 6]
IC310	272P234010	IC	LA7295
IC3B0	272P687010	IC	NJM2234L [1, 2, 3, 5]
IC4A0	274P318060	IC	MN67492MSU5
IC4A1	272P079010	IC	NJM2902M
IC501	274P573010	IC	M35013-050SP
○ IC551	274P672010	IC	SDA5649 [2, 3, 4, 5]
○ IC5A0	274P675040	IC	M38184MA-174FP [1]
○ IC5A0	274P674030	IC	M38185ME-094FP [2, 5]
○ IC5A0	274P674040	IC	M38185ME-116FP [3, 6]
○ IC5A0	274P674020	IC	M38185ME-093FP [4]
IC5A1	263P593010	IC	CAT35C104P
IC5A2	272P235010	IC	TA7291S
IC5A4	266P010020	IC	μPC574J-K
○ IC5A5	270P070010	IC	AT93C56-10PC [2, 5]
IC5A5	263P593010	IC	CAT35C104P [4]
IC9A0	272P237010	IC	LA6324N

TRANSISTORS

SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
Q 101	260P874010	CHIP TRANSISTOR	2SC3082K-P, Q
Q 102	260P560040	TRANSISTOR	2SA933S-S
Q 103	260P805030	CHIP TRANSISTOR	2SC3053-D
Q 106	260P808010	CHIP TRANSISTOR	DTC114EK [3, 4, 6]
Q 109	260P804020	CHIP TRANSISTOR	2SC3052-F [3, 4, 6]
Q 110	260P804020	CHIP TRANSISTOR	2SC3052-F [3, 4, 6]
Q 111	260P808010	CHIP TRANSISTOR	DTC114EK [3, 4, 6]
Q 201	260P807010	CHIP TRANSISTOR	UN2212
Q 202	260P807010	CHIP TRANSISTOR	UN2212
Q 203	260P802020	CHIP TRANSISTOR	2SA1235-F
Q 204	260P807010	CHIP TRANSISTOR	UN2212 [3, 4, 6]
Q 205	260P807010	CHIP TRANSISTOR	UN2212 [1, 2, 5]
Q 207	260P802020	CHIP TRANSISTOR	2SA1235-F
Q 208	260P805030	CHIP TRANSISTOR	2SC3053-D
Q 260	260P807010	CHIP TRANSISTOR	UN2212
Q 261	260P807010	CHIP TRANSISTOR	UN2212
Q 262	260P807010	CHIP TRANSISTOR	UN2212
Q 2B1	260P805030	CHIP TRANSISTOR	2SC3053-D
Q 2B5	260P807010	CHIP TRANSISTOR	UN2212
Q 2B6	260P805030	CHIP TRANSISTOR	2SC3053-D
Q 2B8	260P805030	CHIP TRANSISTOR	2SC3053-D
Q 2B9	260P805030	CHIP TRANSISTOR	2SC3053-D
Q 2C0	260P805030	CHIP TRANSISTOR	2SC3053-D
Q 2C3	260P806010	CHIP TRANSISTOR	DTA124EK [1, 2, 5]
Q 2C5	260P807010	CHIP TRANSISTOR	UN2212
Q 2C8	260P805030	CHIP TRANSISTOR	2SC3053-D
Q 2D0	260P805030	CHIP TRANSISTOR	2SC3053-D
Q 2D1	260P807010	CHIP TRANSISTOR	UN2212 [2, 3, 4, 5, 6]
Q 2D4	260P802020	CHIP TRANSISTOR	2SA1235-F
Q 2D5	260P805030	CHIP TRANSISTOR	2SC3053-D
Q 2D6	260P560040	TRANSISTOR	2SA933S-S
Q 2D7	260P807010	CHIP TRANSISTOR	UN2212
Q 2D9	260P805030	CHIP TRANSISTOR	2SC3053-D [1, 2, 3, 5]
Q 2E0	260P805030	CHIP TRANSISTOR	2SC3053-D [1, 2, 3, 5]
Q 2E3	260P802020	CHIP TRANSISTOR	2SA1235-F
Q 2P0	260P802020	CHIP TRANSISTOR	2SA1235-F
Q 2P1	260P805030	CHIP TRANSISTOR	2SC3053-D
Q 2P2	260P805030	CHIP TRANSISTOR	2SC3053-D
Q 2P4	260P805030	CHIP TRANSISTOR	2SC3053-D
Q 2P5	260P807010	CHIP TRANSISTOR	UN2212 [1, 2, 5]
Q 2P6	260P806010	CHIP TRANSISTOR	DTA124EK [1, 2, 5]
Q 2P7	260P807010	CHIP TRANSISTOR	UN2212 [1, 2, 5]
Q 2U0	260P806010	CHIP TRANSISTOR	DTA124EK [1, 2, 5]
Q 2V0	260P802020	CHIP TRANSISTOR	2SA1235-F [2, 3, 4, 5]
Q 2301	260C676040	TRANSISTOR	2SC3311A-R, S [4, 6]
Q 2304	260P603010	TRANSISTOR	UN4112 [4, 6]
Q 310	260P629060	TRANSISTOR	2SC3331-S
Q 3A0	260P804020	CHIP TRANSISTOR	2SC3052-F
Q 3A1	260P804020	CHIP TRANSISTOR	2SC3052-F
Q 4A0	260P804020	CHIP TRANSISTOR	2SC3052-F
Q 4A2	260P804020	CHIP TRANSISTOR	2SC3052-F
Q 4A3	260P804030	CHIP TRANSISTOR	2SC3052-G
Q 4A4	260P802020	CHIP TRANSISTOR	2SA1235-F
Q 4A7	260P802020	CHIP TRANSISTOR	2SA1235-F
Q 4A8	260P802020	CHIP TRANSISTOR	2SA1235-F
Q 4C8	260P805030	CHIP TRANSISTOR	2SC3053-D
Q 501	260P802020	CHIP TRANSISTOR	2SA1235-F
Q 503	260P802020	CHIP TRANSISTOR	2SA1235-F
Q 506	260P802020	CHIP TRANSISTOR	2SA1235-F [3, 4, 6]
Q 508	260P804020	CHIP TRANSISTOR	2SC3052-F
Q 5A1	260P802020	CHIP TRANSISTOR	2SA1235-F
Q 5A2	260P802020	CHIP TRANSISTOR	2SA1235-F
Q 5A3	260P804020	CHIP TRANSISTOR	2SC3052-F
Q 5A9	260P806010	CHIP TRANSISTOR	DTA124EK
Q 5B0	260P806010	CHIP TRANSISTOR	DTA124EK
Q 5B1	260P807010	CHIP TRANSISTOR	UN2212
Q 5B2	260P802020	CHIP TRANSISTOR	2SA1235-F
Q 5B3	260P802020	CHIP TRANSISTOR	2SA1235-F
Q 5B5	260P804030	CHIP TRANSISTOR	2SC3052-G
Q 5B6	260P804030	CHIP TRANSISTOR	2SC3052-G
Q 5B7	260P807010	CHIP TRANSISTOR	UN2212
Q 5B8	260P806010	CHIP TRANSISTOR	DTA124EK
Q 5C0	260P804030	CHIP TRANSISTOR	2SC3052-G
Q 5C1	260P804020	CHIP TRANSISTOR	2SC3052-F
Q 5C2	260P807010	CHIP TRANSISTOR	UN2212
Q 5C3	260P804020	CHIP TRANSISTOR	2SC3052-F
Q 5C4	260P804020	CHIP TRANSISTOR	2SC3052-F
Q 5C5	260P802020	CHIP TRANSISTOR	2SA1235-F
Q 5D6	260P806010	CHIP TRANSISTOR	DTA124EK
Q 5E1	268P014030	PHOTO TRANSISTOR	PN205L-(NC).M12
Q 5E2	268P014030	PHOTO TRANSISTOR	PN205L-(NC).M12
Q 5E3	268P059010	PHOTO INTERRUPTER	RPI-244
Q 5E4	268P059010	PHOTO INTERRUPTER	RPI-244
Q 5F0	260P560040	TRANSISTOR	2SA933S-S
Q 5F1	260P806010	CHIP TRANSISTOR	DTA124EK
Q 9A1	260C628010	TRANSISTOR	2SA1619A-Q
Q 9A2	260P640040	TRANSISTOR	2SD1762-E, F
Q 9A3	260P640040	TRANSISTOR	2SD1762-E, F
Q 9A4	260P640040	TRANSISTOR	2SD1762-E, F
Q 9A5	260P613010	TRANSISTOR	2SC4208A
Q 9A7	260P560030	TRANSISTOR	2SA933S-R, F
Q 9A8	260P560040	TRANSISTOR	2SA933S-S
Q 9A9	260P585030	TRANSISTOR	2SD1682-T, U
Q 9B0	260P802020	CHIP TRANSISTOR	2SA1235-F
Q 9B2	260P613010	TRANSISTOR	2SC4208A [4, 6]

DIODES

SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
D 5B1	264P585010	LIGHT EMITTING DIODE	LN59L.MI

FILTERS

SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
CF101	296P014030	CERAMIC FILTER	SFE-6.0MHz [1, 2, 5]
CF101	296P014090	CERAMIC FILTER	SFE-5.5MC2 [3, 4, 6]
CF102	296P024040	CERAMIC TRAP	TPS6.0MB [1, 2, 5]
CF102	296P104010	CERAMIC TRAP	EFC-S3F01W3A [3, 4, 6]
CF103	299P051050	CERAMIC RESONATOR	CS8500F9 [3, 4, 6]
CF104	296P143020	CERAMIC DISCRIMINATER	CDSH6.0ME65 [1, 2, 5]
CF104	296P143010	CERAMIC DISCRIMINATER	CDSH5.5ME65 [3, 4, 6]
SF101	296P141020	SAW FILTER	SAF39.5MVA80Z [1, 2]
SF101	296P141010	SAW FILTER	SAF38.9MVB85Z [3, 4, 5, 6]
SF102	296P134020	SAW FILTER	SAF32.9MC70Z [1, 2, 5]
SF102	296P134010	SAW FILTER	SAF33.0MC70Z [3, 4, 6]

DELAY LINES

SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
D 101	264P568010	DIODE	1SS252 [3, 4, 6]
D 102	264P568010	DIODE	1SS252 [3, 4, 6]
D 2A3	264P568010	DIODE	1SS252
D 2A6	264P568010	DIODE	1SS252 [3, 4, 6]
D 2A8	264P568010	DIODE	1SS252
D 2A9	264P568010	DIODE	1SS252 [1, 2, 3, 5]
D 2B0	264P568010	DIODE	1SS252 [1, 2, 3, 5]
D 2B1	264P568010	DIODE	1SS252 [1, 2, 3, 5]
D 2B2	264P568010	DIODE	1SS252
D 2B3	264P568010	DIODE	1SS252
D 2B4	264P568010	DIODE	1SS252 [1, 2, 5]
D 2B5	264P568010	DIODE	1SS252 [1, 2, 3, 5]
D 2301	264P568010	DIODE	1SS252 [4, 6]
D 2302	264P568010	DIODE	1SS252 [4, 6]
D 2303	264P568010	DIODE	1SS252 [4, 6]
D 2304	264P568010	DIODE	1SS252 [4, 6]
D 2305	264P568010	DIODE	1SS252 [4, 6]
D 2306	264P568010	DIODE	1SS252 [2, 3, 4, 5, 6]
D 2307	264P568010	DIODE	1SS252 [4, 6]
D 2308	264P568010	DIODE	1SS252 [4, 6]
D 2313	264P568010	DIODE	1SS252 [4, 6]
D 2315	264P568010	DIODE	1SS252 [4, 6]
D 301	264P568010	DIODE	1SS252
D 3A0	264P568010	DIODE	1SS252
D 4A0	264P808010	CHIP DIODE	DAN202K
D 4A1	264P568010	DIODE	1SS252
D 501	264P568010	DIODE	1SS252
D 5A2	264P342070	DIODE	HZ4C2
D 5A4	264P808010	CHIP DIODE	DAN202K
D 5A5	264P808010	CHIP DIODE	DAN202K
D 5A6	264P568010	DIODE	1SS252
D 5A7	264P568010	DIODE	1SS252
D 5A8	264P568010	DIODE	1SS252
D 5A9	264P568010	DIODE	1SS252
D 5B2	264P568010	DIODE	1SS252
D 5B3	264P568010	DIODE	1SS252
D 5B4	264P568010	DIODE	1SS252
D 5B6	264P568010	DIODE	1SS252
D 5B7	264P568010	DIODE	1SS252
D 5D0	264P568010	DIODE	1SS252
D 5V0	264P486020	DIODE	RD8.2FB3
D 8A1	264P568010	DIODE	1SS252
D 8A2	264P568010	DIODE	1SS252
D 8A3	264P568010	DIODE	1SS252
D 8A4	264P568010	DIODE	1SS252 [2, 3, 4, 5]
D 8B0	264P568010	DIODE	1SS252
D 8B1	264P568010	DIODE	1SS252
D 8B2	264P568010	DIODE	1SS252
D 8B3	264P568010	DIODE	1SS252
D 8J0	264P568010	DIODE	1SS252 [3, 4, 6]
D 8J1	264P568010	DIODE	1SS252 [2, 5]
D 8K0	264P568010	DIODE	1SS252 [2, 3, 6]
D 8K1	264P568010	DIODE	1SS252 [4, 6]
D 8K2	264P568010	DIODE	1SS252 [3]
D 8L0	264P568010	DIODE	1SS252 [2, 3]
D 8L2	264P568010	DIODE	1SS252 [3, 4]
D 8L3	264P568010	DIODE	1SS252 [6]
D 8M0	264P568010	DIODE	1SS252 [3, 4]
D 8M1	264P568010	DIODE	1SS252 [3]
D 9A1	264P294010	DIODE	EM 1Z
D 9A2	264P294010	DIODE	EM 1Z
D 9A3	264P294010	DIODE	EM 1Z
D 9A4	264P294010	DIODE	EM 1Z
D 9A5	264P294010	DIODE	EM 1Z
D 9A6	264P294010	DIODE	EM 1Z
D 9A7	264P294010	DIODE	EM 1Z
D 9A8	264P294010	DIODE	EM 1Z
D 9A9	264P500020	DIODE	EM01Z
D 9B0	264P500020	DIODE	EM01Z
D 9B1	264P104040	DIODE	HZ30-2
D 9B3	264P452030	DIODE	HZ5C3
D 9C0	264P568010	DIODE	1SS252
D 9C1	264P568010	DIODE	1SS252
D 9C2	264P568010	DIODE	1SS252
D 9C3	264P592010	DIODE	HZ18-2L
D 9C4	264P500020	DIODE	EM01Z
D 9C5	264P487080	DIODE	RD12FB2 [4, 6]
DL2A0	337P081010	DELAY LINE	CF873

SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION

COILS

SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
L 01	325C121030	PEAKING COIL	10 μH-K
L 101	325C122050	PEAKING COIL	100 μH-K
L 102	325C165020	PEAKING COIL	1.2 μH-J
L 103	325C170050	PEAKING COIL	2.2 μH-K SHIELD
L 104	325C165040	PEAKING COIL	1.8 μH-J
L 105	325C121040	PEAKING COIL	12 μH-K
○ L 106	323P196010	VIF COIL	M7-T1SA-4091-5
L 107	325C167020	PEAKING COIL	56 μH-J [1, 2]
L 107	325C167000	PEAKING COIL	39 μH-J [3, 4, 6]
L 107	325C166080	PEAKING COIL	27 μH-J [5]
○ L 108	323P196020	VIF COIL	M7-T1SA-4092-1
L 109	325C166020	PEAKING COIL	8.2 μH-J [1, 2]
L 109	325C166000	PEAKING COIL	5.6 μH-J [3, 4, 5, 6]
L 201	325C102050	PEAKING COIL	100 μH-K
L 202	325C166070	PEAKING COIL	22 μH-J
L 203	325C167040	PEAKING COIL	82 μH-J
L 204	325C167070	PEAKING COIL	150 μH-J
L 2A8	325C166060	PEAKING COIL	18 μH-J
L 2A9	325C167080	PEAKING COIL	180 μH-J
L 2B0	325C167030	PEAKING COIL	68 μH-J
L 2B1	325C166060	PEAKING COIL	18 μH-J
L 2B2	325C168010	PEAKING COIL	330 μH-J
L 2B4	325C165070	PEAKING COIL	3.3 μH-J
L 2B5	325C166020	PEAKING COIL	8.2 μH-J
L 2B8	321C112050	RF COIL	100 μH-K
L 2B9	321C112050	RF COIL	100 μH-K
L 2C0	325C162050	PEAKING COIL	100 μH-K [1, 2]
L 2C0	325C167050	PEAKING COIL	100 μH-J [3, 4, 5, 6]
L 2C1	325C167010	PEAKING COIL	47 μH-J
L 2C2	325C166090	PEAKING COIL	33 μH-J
L 2C3	325C122050	PEAKING COIL	100 μH-K
L 2G3	325C122000	PEAKING COIL	39 μH-K [3, 4, 6]
L 2P1	325C166090	PEAKING COIL	33 μH-J
L 2P5	325C166090	PEAKING COIL	33 μH-J
L 2P6	325C167010	PEAKING COIL	47 μH-J
L 2Z0	325C160010	PEAKING COIL	1.0 μH-K [1]
L 2Z1	325C160050	PEAKING COIL	2.2 μH-K [1]
L 2Z2	325C161030	PEAKING COIL	10 μH-K [1]
L 2Z3	325C160010	PEAKING COIL	1.0 μH-K [1]
L 2Z4	325C160010	PEAKING COIL	1.0 μH-K [1]
L 2Z5	325C161030	PEAKING COIL	10 μH-K [1]
L 2301	325C122050	PEAKING COIL	100 μH-K [4, 6]
L 2371	325C120010	PEAKING COIL	1.0 μH-M [2, 3, 4, 5, 6]
L 2372	325C120050	PEAKING COIL	2.2 μH-M/K [2, 3, 4, 5, 6]
L 2373	325C121030	PEAKING COIL	10 μH-K [2, 3, 4, 5, 6]
L 2374	325C121030	PEAKING COIL	10 μH-K [2, 3, 4, 5, 6]
L 2375	325C120010	PEAKING COIL	1.0 μH-M [2, 3, 4, 5, 6]
L 2376	325C120010	PEAKING COIL	1.0 μH-M [2, 3, 4, 5, 6]
L 2377	325C120010	PEAKING COIL	1.0 μH-M [2, 3, 4, 5, 6]
L 2379	325C120050	PEAKING COIL	2.2 μH-M/K [2, 3, 4, 5, 6]
L 2380	325C121030	PEAKING COIL	10 μH-K [2, 3, 4, 5, 6]
L 2381	325C121030	PEAKING COIL	10 μH-K [4, 6]
L 2382	325C120010	PEAKING COIL	1.0 μH-M [4, 6]
L 2383	325C120010	PEAKING COIL	1.0 μH-M [4, 6]
L 2384	411P011010	BEADS FERRITE	[2, 3, 4, 5, 6]
L 310	321C113070	RF COIL	1000 μH-K
L 311	321C114080	RF COIL	8200 μH-J
L 4A7	325C162050	PEAKING COIL	100 μH-K [1, 2]
L 4A7	325C167050	PEAKING COIL	100 μH-J [3, 4, 5, 6]
L 4A8	325C121030	PEAKING COIL	10 μH-K
L 501	325C122050	PEAKING COIL	100 μH-K
L 502	325C146050	CHIP COIL	15 μH-J
L 503	325C262050	PEAKING COIL	100 μH-K [1, 2]
L 503	325C167050	PEAKING COIL	100 μH-J [3, 4, 5, 6]
L 507	325C166080	PEAKING COIL	27 μH-J [4, 6]
L 507	325C266080	PEAKING COIL	27 μH-J [3]
L 551	325C262050	PEAKING COIL	100 μH-K [2]
L 551	325C167050	PEAKING COIL	100 μH-J [3, 4, 5]
○ L 901	351P038010	LINE FILTER	ELF-18D290CN

TRANSFORMERS

SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
T 310	409P423030	AUDIO BIAS OSC	409P42301/2
T 901	350P607030	TRANS POWER	

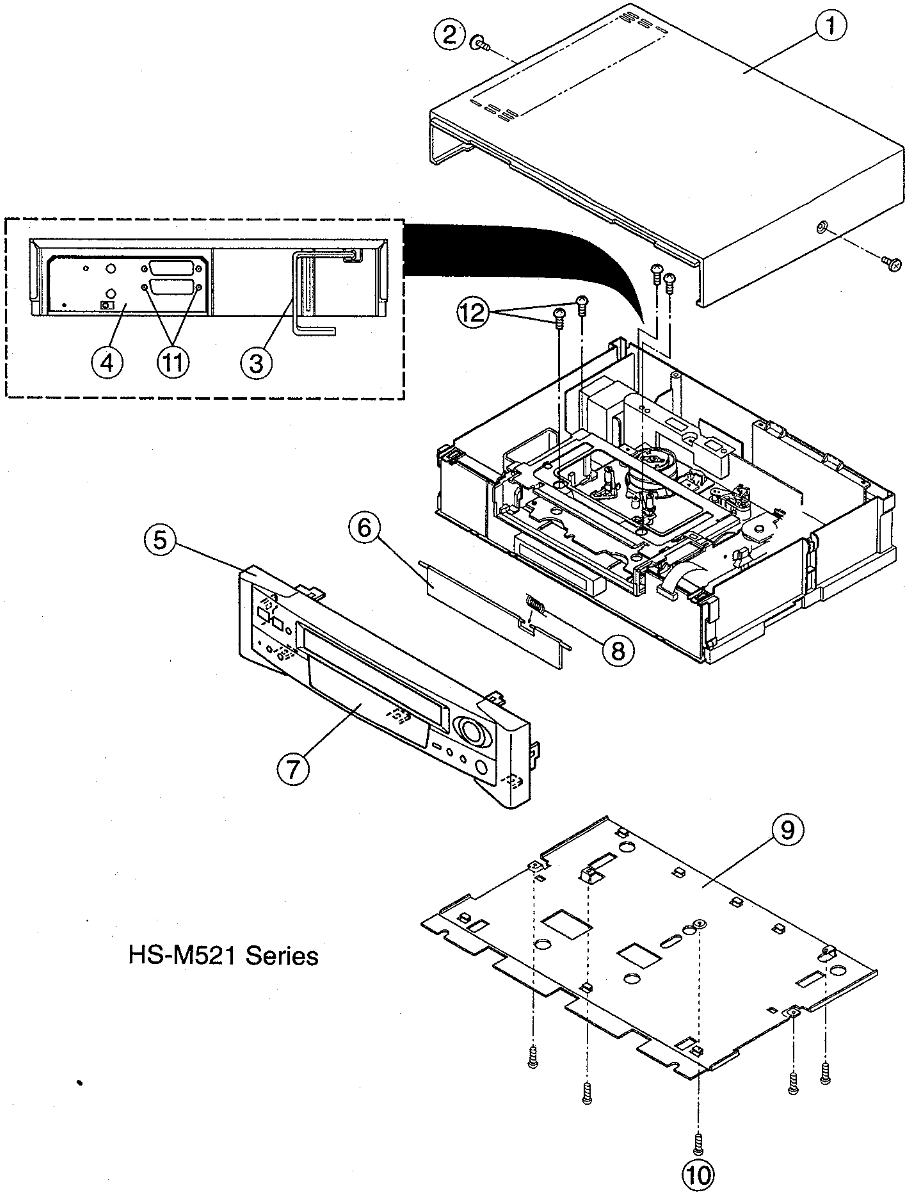
VARIABLE RESISTORS

SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
VR101	127C381000	VR SEMIFIXED	1/5W B30kΩ-M
VR203	127C480080	VR SEMIFIXED	1/5W B10kΩ+-25%
VR2A0	127C380090	VR SEMIFIXED	1/5W B20kΩ-M
VR2A1	127C390090	VR SEMIFIXED	1/5W B20kΩ-M
VR2A2	127C380080	VR SEMIFIXED	1/5W B10kΩ-M
VR2A3	127C380050	VR SEMIFIXED	1/5W B2kΩ-M
VR2A5	127C380090	VR SEMIFIXED	1/5W B20kΩ-M
VR310	127C481020	VR SEMIFIXED	1/5W B100kΩ+-25%
VR5A0	127C381020	VR SEMIFIXED	1/5W B100kΩ-M

RESISTORS

SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
R 01	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 03	103P404000	CHIP RESISTOR	1/10W 18kΩ-J
R 04	103P401020	CHIP RESISTOR	1/10W 82Ω-J [1, 2, 5]
R 06	103P409050	CHIP RESISTOR	0.1W 0Ω (2125) [3, 4, 5, 6]
R 08	103P403070	CHIP RESISTOR	1/10W 10kΩ-J
R 11	103P403070	CHIP RESISTOR	1/10W 10kΩ-J [3, 4, 5, 6]
R 12	103P403070	CHIP RESISTOR	1/10W 10kΩ-J [3, 4, 5, 6]
R 13	103P403070	CHIP RESISTOR	1/10W 10kΩ-J [3, 4, 5, 6]
R 16	103P404000	CHIP RESISTOR	1/10W 18kΩ-J
R 101	103P403060	CHIP RESISTOR	1/10W 8.2kΩ-J
R 102	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 103	103P402030	CHIP RESISTOR	1/10W 680Ω-J
R 104	103P401010	CHIP RESISTOR	1/10W 68Ω-J
R 108	103P477010	CHIP RESISTOR	1/10W 82kΩ-F
R 110	103P476060	CHIP METAL	1/10W 51kΩ-F
R 111	103P401030	CHIP RESISTOR	1/10W 100Ω-J
R 112	103P402040	CHIP RESISTOR	1/10W 820Ω-J

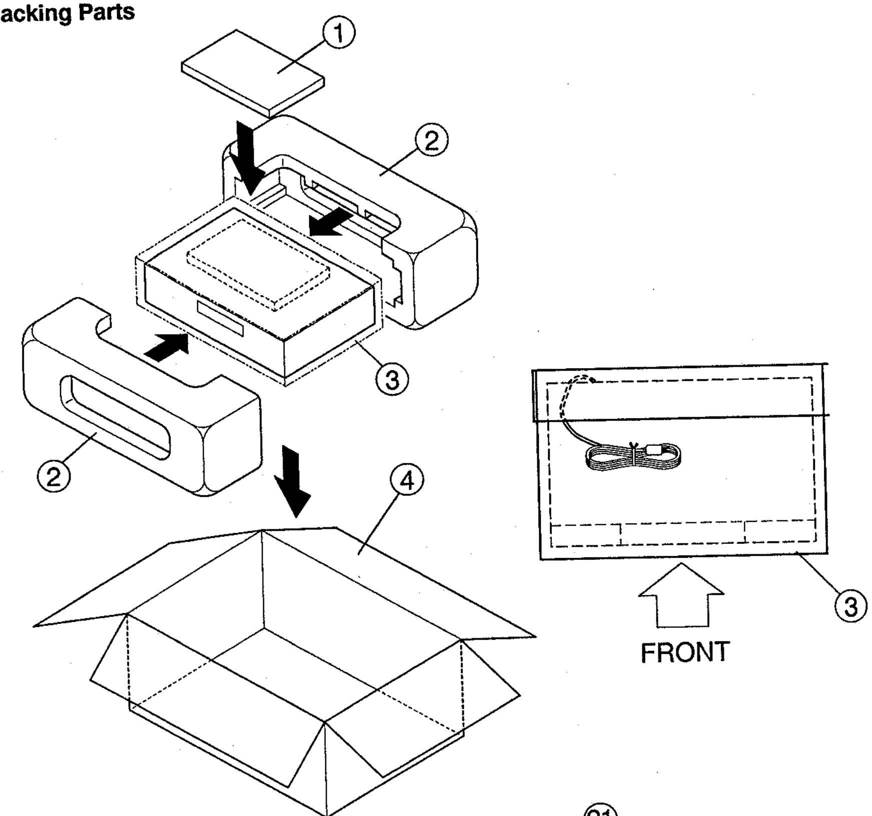
SYMBOL NO.	PARTS NO.	PARTS NAME	DESCRIPTION
R 113	103P471090	CHIP RESISTOR	1/10W 560Ω-F
R 114	103P401030	CHIP RESISTOR	1/10W 100Ω-J
R 115	103P471090	CHIP RESISTOR	1/10W 560Ω-F
R 117	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 118	103P471050	CHIP RESISTOR	1/10W 390Ω- F [1, 2]
R 118	103P470050	CHIP RESISTOR	1/10W 150Ω-F[3, 4, 6]
R 118	103P471010	CHIP RESISTOR	1/10W 270Ω-F [5]
R 119	103P401030	CHIP RESISTOR	1/10W 100Ω-J
R 120	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 127	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 130	103P405090	CHIP RESISTOR	1/10W 680kΩ-J [3, 4, 6]
R 131	103P403050	CHIP RESISTOR	1/10W 6.8kΩ-J [3, 4, 6]
R 132	103P403070	CHIP RESISTOR	1/10W 10kΩ-J[3, 4, 6]
R 133	103P403040	CHIP RESISTOR	1/10W 5.6kΩ-J [3, 4, 6]
R 134	103P401080	CHIP RESISTOR	1/10W 270Ω-J[3, 4, 6]
R 135	103P402010	CHIP RESISTOR	1/10W 470Ω-J[3, 4, 6]
R 136	103P405020	CHIP RESISTOR	1/10W 180kΩ-J [3, 4, 6]
R 138	103P409050	CHIP RESISTOR	0.1W 0Ω (2125)
R 142	103P404070	CHIP RESISTOR	1/10W 68kΩ-J[3, 4, 6]
R 143	103P404010	CHIP RESISTOR	1/10W 22kΩ-J[3, 4, 6]
R 144	103P402070	CHIP RESISTOR	1/10W 1.5kΩ-J [3, 4, 6]
R 145	103P402020	CHIP RESISTOR	1/10W 560Ω-J[3, 4, 6]
R 146	103P401030	CHIP RESISTOR	1/10W 100Ω-J[3, 4, 6]
R 147	103P403010	CHIP RESISTOR	1/10W 3.3kΩ-J [3, 4, 6]
R 150	103P404030	CHIP RESISTOR	1/10W 33kΩ-J
R 200	103P403030	CHIP RESISTOR	1/10W 4.7kΩ-J [3, 4, 6]
R 202	103P403070	CHIP RESISTOR	1/10W 10kΩ-J[1, 2, 5]
R 202	103P403090	CHIP RESISTOR	1/10W 15kΩ-J[3, 4, 6]
R 203	103P404030	CHIP RESISTOR	1/10W 33kΩ-J[1, 2, 5]
R 203	103P404020	CHIP RESISTOR	1/10W 27kΩ-J[3, 4, 6]
R 205	103P405060	CHIP RESISTOR	1/10W 390kΩ-J
R 206	103P476060	CHIP METAL	1/10W 51kΩ-F
R 208	103P401090	CHIP RESISTOR	1/10W 330Ω-J
R 209	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 210	103P402060	CHIP RESISTOR	1/10W 1.2kΩ-J
R 211	103P404010	CHIP RESISTOR	1/10W 22kΩ-J
R 212	103P404010	CHIP RESISTOR	1/10W 22kΩ-J
R 213	103P401030	CHIP RESISTOR	1/10W 100Ω-J
R 214	103P402080	CHIP RESISTOR	1/10W 1.8kΩ-J
R 215	103P473000	CHIP RESISTOR	1/10W 1.6kΩ-F
R 216	103P472050	CHIP RESISTOR	1/10W 1kΩ-F
R 217	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 218	103P476000	CHIP RESISTOR	1/10W 30kΩ-F
R 220	103P474080	CHIP RESISTOR	1/10W 9.1K
R 221	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 222	103P402080	CHIP RESISTOR	1/10W 1.8kΩ-J
R 225	103P402030	CHIP RESISTOR	1/10W 680Ω-J
R 226	103P404030	CHIP RESISTOR	1/10W 33kΩ-J[3, 4, 6]
R 265	103P473030	CHIP RESISTOR	1/10W 2.2kΩ-F
R 266	103P473030	CHIP RESISTOR	1/10W 2.2kΩ-F
R 267	103P473070	CHIP RESISTOR	1/10W 3.3kΩ-F
R 268	103P473030	CHIP RESISTOR	1/10W 2.2kΩ-F
R 272	103P477050	CHIP RESISTOR	1/10W 120K
R 273	103P475070	CHIP RESISTOR	1/10W 22kΩ-F
R 274	103P476070	CHIP RESISTOR	1/10W 56kΩ-F
R 277	103P474090	CHIP RESISTOR	1/10W 10kΩ-F
R 278	103P474090	CHIP RESISTOR	1/10W 10kΩ-F
R 279	103P474090	CHIP RESISTOR	1/10W 10kΩ-F
R 2D2	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 2D3	103P402030	CHIP RESISTOR	1/10W 680Ω-J
R 2D4	103P401060	CHIP RESISTOR	1/10W 180Ω-J[1, 2, 5]
R 2D4	103P401070	CHIP RESISTOR	1/10W 220Ω-J[3, 4, 6]
R 2E1	103P403000	CHIP RESISTOR	1/10W 2.7kΩ-J [1, 2, 5]
R 2E1	103P402070	CHIP RESISTOR	1/10W 1.5kΩ-J [3, 4, 6]
R 2E2	103P401080	CHIP RESISTOR	1/10W 270Ω-J[1, 2, 5]
R 2E2	103P401070	CHIP RESISTOR	1/10W 220Ω-J[3, 4, 6]
R 2E3	103P402020	CHIP RESISTOR	1/10W 560Ω-J[1, 2, 5]
R 2E5	103P402040	CHIP RESISTOR	1/10W 820Ω-J
R 2E6	103P473040	CHIP RESISTOR	1/10W 2.4kΩ-F
R 2E7	103P403090	CHIP RESISTOR	1/10W 15kΩ-J
R 2E8	103P404040	CHIP RESISTOR	1/10W 39kΩ-J
R 2F1	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 2F2	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 2F3	103P404030	CHIP RESISTOR	1/10W 33kΩ-J
R 2F4	103P403090	CHIP RESISTOR	1/10W 15kΩ-J
R 2F5	103P401070	CHIP RESISTOR	1/10W 220Ω-J[1, 2, 5]
R 2F5	103P401080	CHIP RESISTOR	1/10W 270Ω-J[3, 4, 6]
R 2F6	103P404030	CHIP RESISTOR	1/10W 33kΩ-J
R 2F7	103P402020	CHIP RESISTOR	1/10W 560Ω-J
R 2F8	103P473080	CHIP RESISTOR	1/10W 3.6kΩ-F
R 2G0	103P402060	CHIP RESISTOR	1/10W 1.2kΩ-J
R 2G1	103P403020	CHIP RESISTOR	1/10W 3.9kΩ-J
R 2G2	103P403000	CHIP RESISTOR	1/10W 2.7kΩ-J
R 2G3	103P402020	CHIP RESISTOR	1/10W 560Ω-J
R 2G4	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 2G5	103P401080	CHIP RESISTOR	1/10W 270Ω-J
R 2G7	103P402050	CHIP RESISTOR	1/10W 1kΩ-J [1, 2, 5]
R 2G8	103P406010	CHIP RESISTOR	1/10W 1MΩ-J
R 2H1	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 2H3	103P401080	CHIP RESISTOR	1/10W 270Ω-J
R 2H4	103P402060	CHIP RESISTOR	1/10W 1.2kΩ-J
R 2H5	103P401030	CHIP RESISTOR	1/10W 100Ω-J
R 2H7	103P409050	CHIP RESISTOR	0.1W 0Ω (52125)
R 2J0	103P402060	CHIP RESISTOR	1/10W 1.2kΩ-J
R 2J1	103P401080	CHIP RESISTOR	1/10W 270Ω-J
R 2J2	103P404030	CHIP RESISTOR	1/10W 33kΩ-J
R 2J3	103P404010	CHIP RESISTOR	1/10W 22kΩ-J
R 2J4	103P402090	CHIP RESISTOR	1/10W 2.2kΩ-J
R 2J5	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 2J6	103P402050	CHIP RESISTOR	1/10W 1kΩ-J
R 2J8	103P402080	CHIP RESISTOR	1/10W 1.8kΩ-J
R 2J9	103P403080	CHIP RESISTOR	1/10W 12kΩ-J
R 2K5	103P409090	CHIP RESISTOR	1/10W 75Ω-J [4, 6]



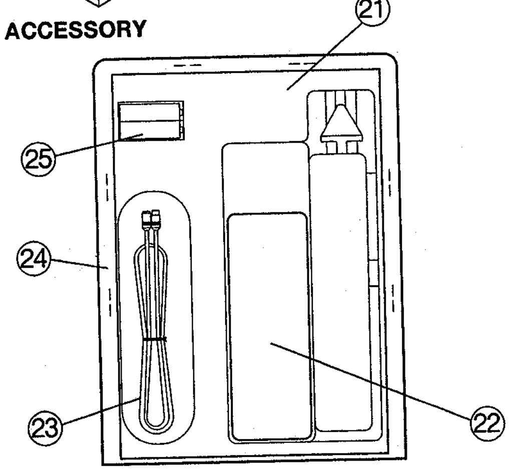
HS-M521 Series

ITEM NO.	PARTS NO.	PARTS NAME	DESCRIPTION
CABINET ASSEMBLY			
1	968C040001	TOP COVER ASSY	
2	669D223080	SCREW	M3X10
3	246C167010	AC POWER CORD	[521VB, 521VIR]
3	246C149040	AC POWER CORD	[521VE, 521Y]
3	246C149080	AC POWER CORD	[521VG]
4	761B284010	ANTENNA COVER	[521VB, 521VE, 521VIR]
4	761B284050	ANTENNA COVER	[521VG]
4	761B284040	ANTENNA COVER	[521Y]
5	968B034001	FRONT UNIT	[521VB, 521VIR]
5	968B034003	FRONT UNIT	[521VE]
5	968B034005	FRONT UNIT	[521VG]
5	968B034002	FRONT UNIT	[521Y]
6	752C160090	CASSETTE DOOR ASSY	[521VB, 521VIR]
6	752C160070	CASSETTE DOOR ASSY	[521VE, 521Y]
6	752C160080	CASSETTE DOOR ASSY	[521VG]
7	752C156020	TIMER PANEL	[521VB, 521VIR]
7	752C156010	TIMER PANEL	[521VE, 521VG]
7	702B966010	TIMER PANEL	[521Y]
8	572D385010	SPRING F/L	
9	590A407010	BOTTOM PANEL	
10	669D220030	SCREW	M3X10 46LA005
11	669D359040	SCREW	M3X12
12	669D221040	SCREW	M4X12 46LA005

2. Packing Parts



ACCESSORY



ITEM NO.	PARTS NO.	PARTS NAME	DESCRIPTION
		PACKING PARTS	
1	----------	ACCESSORY	
2	803A403010	PACKING CUSHION	
3	----------	POLYETHYLENE SHEET	
4	802B508060	PACKING CASE	[520VB]
4	802B508010	PACKING CASE	[521VB]
4	802B508040	PACKING CASE	[521VE]
4	802B508020	PACKING CASE	[521VG]
4	802B508050	PACKING CASE	[521VIR]
4	802B508030	PACKING CASE	[521Y]
		ACCESSORY	
21	872C136070	INSTRUCTION BOOK	[520VB]
21	872C132080	INSTRUCTION BOOK	[521VB]
21	872C132060	INSTRUCTION BOOK	[521VE]
21	872C132070	INSTRUCTION BOOK	[521VG]
21	872C132090	INSTRUCTION BOOK	[521VIR]
21	872C132050	INSTRUCTION BOOK	[521Y]
22	939P575060	REMOTE HAND UNIT	[520VB]
22	939P593010	REMOTE HAND UNIT	[521VB, 521VIR]
22	939P594010	REMOTE HAND UNIT	[521VE]
22	939P594020	REMOTE HAND UNIT	[521VG]
22	939P574040	REMOTE HAND UNIT	[521Y]
23	242D231030	CABLE	[520VB, 521VB, 521VE, 521VIR, 521Y]
23	243C120010	CABLE	[521VG]
24	829B013030	PACKING BAG	ACCESSORY [520VB, 521VB, 521VIR]
24	829B013040	PACKING BAG	ACCESSORY [521VE]
24	829B013070	ACCESSORY PACK	[521VG]
24	829B013010	PACKING BAG	ACCESSORY [521Y]
25	----------	BATTERY	

GLOSSARY OF ABBREVIATIONS

A/C	Audio/Control
ACC	Automatic Colour Control
A.E	Audio Erase
AFC	Automatic Frequency Control
AFT-D	Automatic Fine Tuning Door Switch
AGC	Automatic Gain Control
AL	After Load
AMP	Amplifier
ANT	Antenna
A-PB	Audio-Playback
A-REC	Audio-Recording
ALC	Automatic Level Control
B-FS	Brake Forward Search
B-RS	Brake Reverse Search
BPF	Band-Pass Filter
B/W	Black and White
BS	Band SW
CASS	Cassette
CP	Capstan
CP-FG	Capstan-Frequency Generator
CP-F/R	Capstan-Forward/Reverse
CP-M	Capstan-Motor
CONV	Converter
CTL	Control
C-LAMP	Cassette Lamp
C-I LAMP	Cassette Indicator Lamp
CE	Chip Enable
$\overline{\text{CE}}$	Not Chip Enable
CK	Clock
CL	Clear
CNT	Counter
CP R-R	Capstan Reverse Rotation
CS-1	Cassette Switch 1
CS-2	Cassette Switch 2
DAL	Delay-After Loading
DEMOD	Demodulator
DET	Detector
DL	Delay Line
DL-REV	During Reverse
DL-FWD	During Forward
DOC	Drop Out Compensator
DL-SL	During Slow
DL-$\overline{\text{SS}}$	During Not Speed Search
DOP	Drop Out Pulse
EF	Emitter Follower
EMPHA	Emphasis
EQ	Equalizer
EE	Electronic-Electronic
ES	End Sensor
FE-H	Full Erase Head
FF	Fast Forward
FG	Frequency Generator
FL-SW	Front Loading SW
FLM	Front Loading Motor
F/R-SW	FF/Rewind Switch
F/R	Forward/Reverse
FS	Forward Search
G	Ground
HE	Hall Element
H-LED	Humidity-LED
H-SENS	Humidity-Sensor
HPF	High-Pass Filter
LIM	Limiter
LPF	Low-Pass Filter
LM	Loading Motor
MDA	Motor Drive Amplifier
MC	Mechanical Control
MIC	Microphone
MOD	Modulator
$\overline{\text{N}}$	Not Normal
OPE	Operation
OSC	Oscillator
O-PWV	ON/OFF Command from Remote Decoder
PB	Play Back
PG	Pulse Generator
P/R-SW	P.B/REC-SW
PCB	Printed Circuit Board
PIC	Picture Control
P/R	Play/Record
PSC	Pulse swallow control
PWT-SET	Power TV Set
PWV	ON/OFF Command to B+ Switching Circuit
REC	Recording
REF	Reference
RIS	Record Inhibit Switch
REW	Rewind
REG	Regulator
RS	Reverse Search
REC-2	Record Command for the Fine Editing Circuit
R-FS	Reel Drive Forward Search
R-P/R	Reel Drive Play/Record
S/AL	Stop After Load
SL	Slow
SLOK	Slow OK
S/P	Still/Pause
SS	Start Sensor
SRV-REC	Servo Record
$\overline{\text{SS}}$	Not Speed Search
S-STOP	Stop Command
STOK	Still OK
STW	Stop Watch
SENS	Sensor
STBY	Stand By
TM	Take up Motor
T-REC	Timer-Record
T.P	Test Point
TR	Transistor
TU-P	Tuner-Power
UL	Unload
VS	Voltage Synthesizer
V.SYNC	Vertical Sync
VCO	Voltage Controlled Oscillator
VXO	Variable Crystal Oscillator
W/D	White/Dark
X'OSC	Crystal Oscillator
Y/C	Luminance/Chrominance

CHIP PARTS REPLACEMENT

CHIP PARTS REPLACEMENT

Some resistors, shorting jumpers (0Ω resistor), ceramic capacitors, transistors and diodes are chip parts which are used for certain circuit elements. When replacing these parts, note the cautions as follows.

Cautions:

A. Use fine tipped, well insulated soldering pencil (iron), about 30 watts, and tweezers.
B. Melt the solder and remove the Chip Parts carefully not to tear off the copper foil of the printed circuit board.
C. Discard removed chips; do not reuse them.
D. Do not apply heat for more than 3 seconds to new chip Parts.
E. Avoid using a rubbing stroke when soldering.
F. Take care not to scratch, or damage the Chip Parts when soldering.
G. Supplementary cementing is not required.

1 Removal of Chip Parts (Resistors, capacitors, etc.)

A. Grasp the part with tweezers. Melt the solder at both sides alternately, remove one side of the part with a twisting motion.
B. Melt the solder at the other side and remove the part.

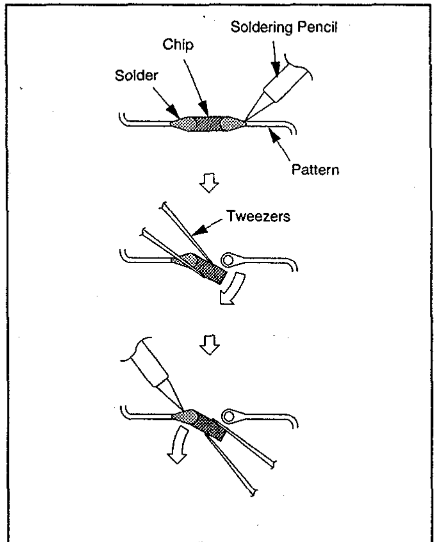


Fig. 1

2 Removal of Chip Parts (Transistors)

A. Melt the solder of one lead. Lift the side of that lead upward.
B. Simultaneously melt the solder of the two remaining leads and lift the part.

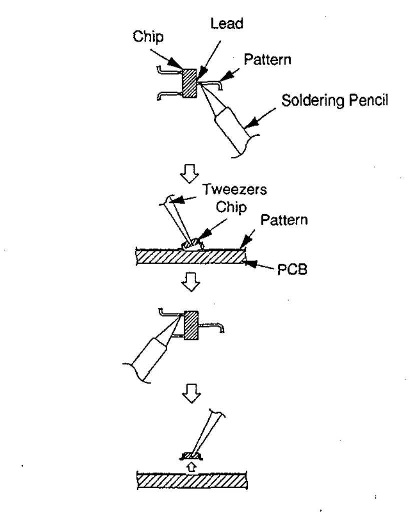


Fig. 2

3 Replacement

A. Presolder the contact points of the circuit pattern.
B. Press the part downward with tweezers and apply the soldering pencil as shown in Fig. 3.

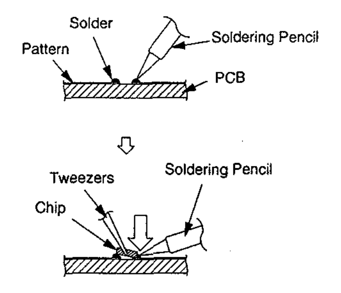
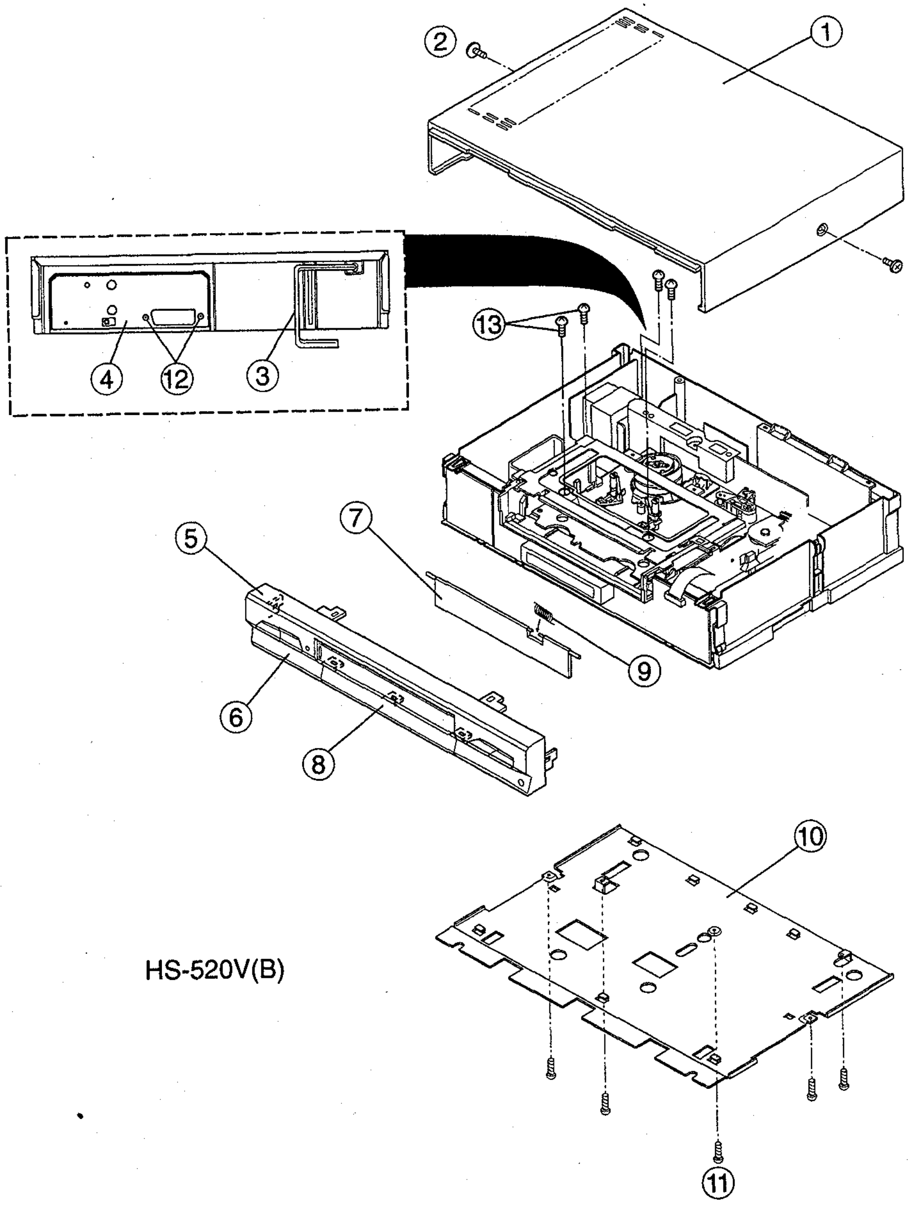


Fig. 3

PARTS LIST

1. CABINET ASSEMBLY



ITEM NO.	PARTS NO.	PARTS NAME	DESCRIPTION
CABINET ASSEMBLY			
1	968C040001	TOP COVER ASSY	
2	669D223080	SCREW	M3X10
3	246C167010	AC POWER CORD	
4	761B284030	ANTENNA COVER	
5	968B033004	FRONT UNIT	
6	752C161050	DOOR PANEL ASSY	
7	752C160050	CASSETTE DOOR ASSY	
8	702B932010	TIMER PANEL	
9	572D385010	SPRING F/L	
10	590A407010	BOTTOM PANEL	
11	669D220030	SCREW	M3X10 46LA005
12	669D359040	SCREW	M3X12
13	669D221040	SCREW	M4X12 46LA005

3-3 Adjustment of A/C Head

3-3-1 Adjustment of A/C Head Slant

① Playback a blank tape.
② Slowly turn the adjusting screw C counter-clockwise to crease the bottom of the tape slightly at the flange portion of the takeup tape guide.
③ Return adjusting screw C slowly to remove the crease.
④ Slowly turn adjusting screw C counter-clockwise again and stop turning just before the tape is creased.

3-3-2 Adjustment of A/C Head Azimuth and Height

① If the height of the CTL head is different from the specified-value in Fig. 3-3-2, adjust the height by the adjusting screw A.
② If adjusting screw A is moved, repeat the procedure in Item 3-3-1 to adjust the A/C head Slant.
③ Connect the oscilloscope to the audio output terminal and set the VCR to the playback mode.
④ Playback the standard tape. [PM6KH3 : 859C339O30]
⑤ Turn adjusting screw B to adjust azimuth so that the audio output level is maximum. Set the scope for an amplitude of 5 divisions.
⑥ After the adjustment of ⑤, pull out the screw driver and check if the audio output level is 4.6 divisions or more, when the maximum level (audio output) of ⑤ was set for 5 divisions.
⑦ If the audio output level is below the specified value, repeat the procedure ①~⑥.
⑧ Push the A/C head to the right and left(in the direction of A and A' in Fig. 3-3-1) and the release the A/C head. Check that the audio output level does not change. (Do not push past the point where the audio output level is reduced by 3/4 of its maximum value.)
⑨ Set the VCR to the playback mode and check if the change of the audio output level is less than 2dB.
⑩ If the change is over 2dB, adjust the A/C head slant again and recheck.
⑪ If not satisfactory, replace the takeup tape guide complying with the following procedure and repeat this adjustment.

- If the original tape guide has no marking, replace it with the one with a black mark.
- If the original tape guide has a black mark, replace it with one with a black mark.
- If the original tape guide has a red mark, replace it with the one with a red mark. If this replacement is not effective, replace it with one with a black mark.

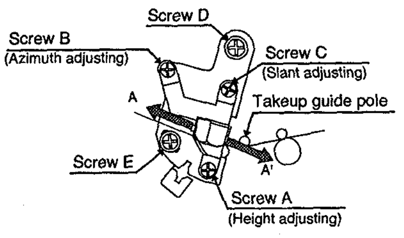


Fig. 3 - 3 - 1

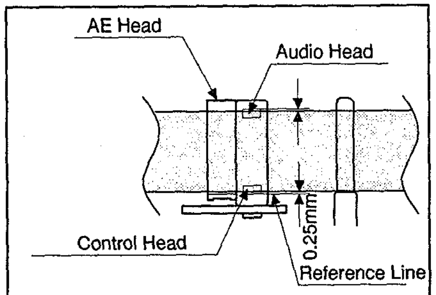


Fig. 3 - 3 - 2

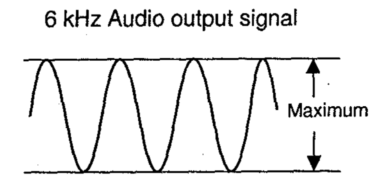


Fig. 3 - 3 - 3

Identification of Tape Guide Item Number
(Example; Parts No. 635B0590[1]0)
Item No.

Item No. 1	No marking
Item No. 2	Marked with black magic marker
Item No. 3	Marked with red magic marker

∗ The marking point is on the tops of the Takeup and Supply tape guides.
(Refer to Fig. 3-2-7)

3-4 Adjustment of Phase

① Set the VCR to the playback mode.
(Use the alignment tape specified below to perform adjustment ①~④.)
[PM3KE6 (CH1) 25 : 859C568O50]
② Preset tracking. (Refer to NOTE 1 in Para. 3.)
③ Loosen the screw E, insert a screw driver into the gap between the Base A/C and the main plate, and shift the Base A/C right and left to adjust the FM waveform to maximum.
④ Tighten the screw E.
⑤ Play back the alignment tape. (PMX:859C568O70)
⑥ Connect TP2A (the FM waveform output) and the audio output terminal to the oscilloscope, external Trig. to TP2H, and check if the missing portions of the FM waveform and that of the audio waveform are within the specified value (field).
(Refer to Fig. 3-4-2.)
⑦ If they are not within the specified value, repeat the procedure ③.
⑧ Turn the normal tracking control to adjust the FM waveform for maximum and set the oscilloscope so that the waveform is '5' divisions. (Refer to Note in Para. 3-2-5 about tracking adjustment.)
⑨ Preset tracking. (Refer to NOTE 1 in Para. 3.)
⑩ Check that the FM waveform on the oscilloscope is " 4.8 " or more divisions.
⑪ If the FM waveform is below " 4.8 " divisions, perform this adjustment after tracking preset.
⑫ Push the A/C head to the right and left (in the direction of A-A' in Fig. 3-4-1) and then release the A/C head. Check that the amplitude of the FM waveform does not change from that before shifting the A/C head.
⑬ If the amplitude changes, check if the A/C arm shaft is loose. If it is not loose, replace the A/C arm and repeat the procedure of this adjustment from the beginning, after the adjustment of A/C head in Item 3-3.
⑭ Alternately load and unload the tape several times to check that the amplitude of the FM waveform does not change.

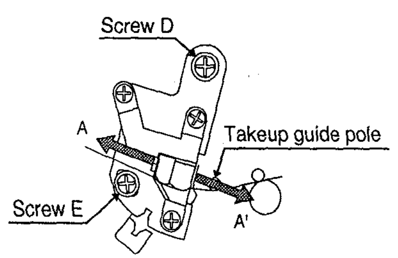


Fig. 3 - 4 - 1

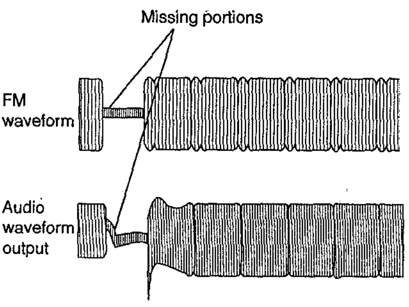


Fig. 3 - 4 - 2

3-2-4 Coarse Adjustment of Phase

① Play back the alignment tape.
[PM6KH3 : 859C339030]

② Preset tracking. (Refer to NOTE 1 in Para. 3.)

③ Check the FM waveform after checking and adjusting the guide rollers:

④ If the amplitude of the FM waveform is narrow like F because of out of phase, adjust it to maximum like G, as shown in Fig. 3-2-4 by the following procedure. Loosen the screw E , insert a screw driver into the groove at the Base A/C and the main plate, and shift the Base A/C right and left.

⑤ Tighten the screw E to secure the base-A/C in place.

3-2-5 Check of FM Waveform Flatness

① Play back the alignment tape.
[PM6KH3 : 859C339030]

Note: In the following adjustment, follow the next procedure for automatic/manual-selection and adjustment of tracking.

- For the manual tracking adjustment, press an up/down button during reproduction.
- To change the adjustment mode from manual to automatic in the tracking adjustment, press the up and down buttons at the same time.

② In the manual tracking mode, change tracking and make sure the amplitude is changeable while the FM signal remains flat.

③ Adjust tracking so that the amplitude of the FM waveform is maximum. Set the oscilloscope so the amplitude of the FM waveform is 5 division.

④ Adjust tracking so that the peak value of the FM waveform is 4 divisions. Check if the FM waveform B, C, D, and E are within the specified values shown in Fig. 3-2-5.

⑤ If the waveform is not within the specified value, repeat the procedure for checking and adjustment of FM envelope in Item 3-2 from the beginning.

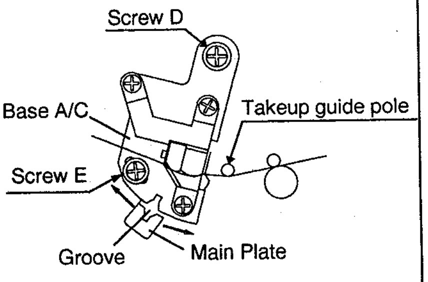


Fig. 3 - 2 - 3

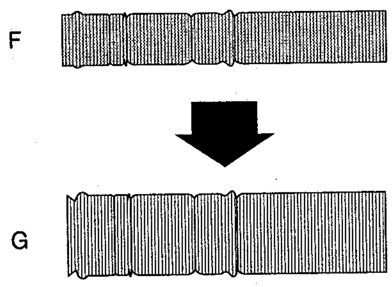
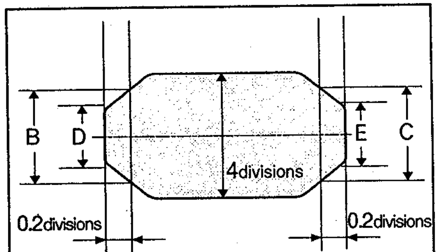


Fig. 3 - 2 - 4



B , C	At least 2.8 of the scale
D , E	At least 2.0 of the scale

Fig. 3 - 2 - 5

3-2-6 Check 1: Tape Running Condition at the Guide Rollers (Refer to Fig. 3-2-6)

① Play back the alignment tape.
[PM6KH3 : 859C339030]

② Visually check if there is a space between the tape and the lower flange of the supply guide roller and takeup guide roller.

③ If there is no space, replace the tape guide as in Item 3-2-7.

④ If EITHER GUIDE ROLLER is replaced. Perform the GUIDE ROLLER adjustment in item 3-2-1. And the FM waveform flatness check in item 3-2-5.

⑤ Load and unload the tape several times, check that flatness of the FM waveform does not change.

⑥ If flatness changes, check if the A/C arm is loose. If it is not loose, replace the A/C arm and repeat the procedure for coarse adjustment of phase in Item 3-2-4.

3-2-7 Replacement of Tape Guides

① If the current tape guide has no marking, replace it with one with a red mark.

② If the current tape guide has a black mark, replace it with one with no mark. If this replacement is not effective, replace the tape guide with one with a red mark.

③ If the current tape guide has a red mark, replace it with another one with red mark.

3-2-8 Check 2: Tape Running Condition on Guide Rollers

① Play back the alignment tape.
[PM6KH3 : 859C339030]

② Lightly press and release the top of the supply guide roller and takeup guide roller. Check that the FM waveform is quickly restored to the previous level.

③ If the waveform is not quickly restored, replace the tape guide as in Item 3-2-7.

④ If the supply tape guide is replaced, check the guide roller as in Item 3-2-1, and if the takeup tape guide is replaced, check the guide roller as in Item 3-2-1. Perform the check FM waveform flatness check as in Item 3-2-5.

⑤ If satisfactory, tighten the set screw of the guide roller on the supply side and the takeup side.

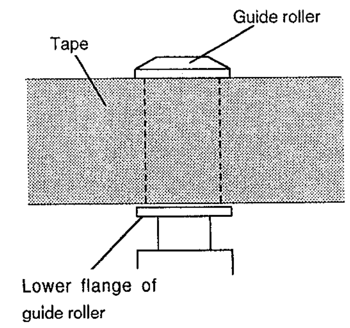


Fig. 3 - 2 - 6

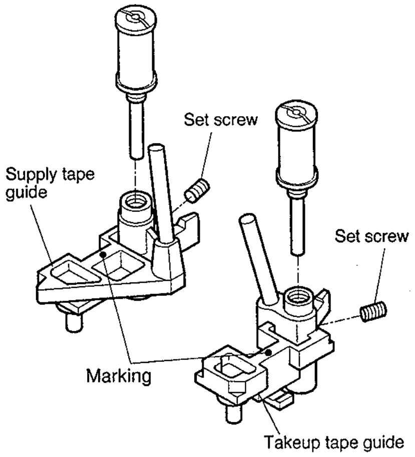


Fig. 3 - 2 - 7

Identification of Tape Guide Item Number
(Example; Parts No. 635B059010
Item No.

Item No. 1	No marking
Item No. 2	Marked with black magic marker
Item No. 3	Marked with red magic marker

∗The marking point is on the top of the tape guides shown in figure above.

② Connect the lead connector to the PCB-A/C-HEAD. (Refer to Item ③ of Para. 2-39 for the installation method.)

③ Perform the A/C head adjustment as outlined in Para. 3-3 and the phase adjustment as outlined in Para. 3-4.

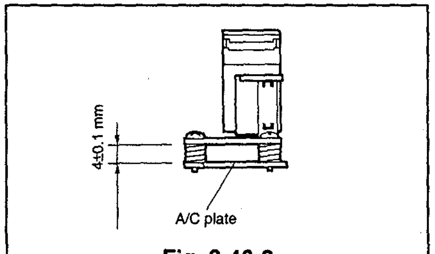

4±0.1 mm
A/C plate

Fig. 2-40-2

2-41 Supply & Takeup Guide Rollers

(Removal)

① Loosen the set screws with a hexagon key so that the guide rollers rotate freely.

② Turn the height adjustment screws at the top of the guide rollers counterclockwise with a height adjustment screwdriver to loosen them. Lift the guide roller upward to remove them from the tape guides.(Refer to Fig. 2-41-1)

(Installation)

① Make sure that the rubber rings are fixed to the fastening thread portions of the new guide rollers.

② Perform the following steps ③ to ⑤ to seat in the rubber rings.

③ Slowly turn the guide rollers clockwise until the rubber rings are firmly seated.

④ Turn the guide rollers a further 1/6 of a turn clockwise and then turn them one turn counter-clockwise.

⑤ Slowly turn the guide rollers clockwise until they become firmly seated again. Turn the guide rollers a further 1/6 of a turn clockwise.

⑥ Secure the guide rollers lightly with the set screws. Perform the mechanism check and adjustment of the FM envelope as outlined in Para. 3-2.

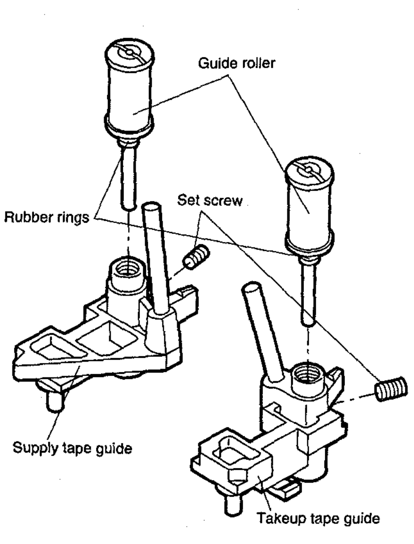

Guide roller
Set screw
Rubber rings
Supply tape guide
Takeup tape guide

Fig. 2-41-1

2-42 Cleaning Roller, Cleaning Arm, Cleaning Lever, and Cleaning Spring

(Removal)

① Remove the PCB-HA/AUDIO. (Refer to Para. 2-8 for the removal method.)

② Unfasten the catch to remove the cleaning roller. (Refer to Fig. 2-42-1)

③ Turn part A of the cleaning assembly clockwise as shown in Fig. 2-42-2 to release the catch part B Fig. 2-42-2 and Fig. 2-42-3(c). Release the catch part E and remove the cleaning assembly from the shaft.

④ Remove the cleaning spring to detach the cleaning arm and the cleaning lever.

(Installation)

① Attach the cleaning arm to the cleaning lever and turn it clockwise as shown in Fig. 2-42-3(c). Make sure that the cleaning arm and the cleaning lever turn without binding.

② Hook one end of the cleaning spring with the boss (point C), projecting from the cleaning arm, and the other end to point D of the cleaning lever as shown in Fig. 2-42-3(d).

③ Place the cleaning assembly in the position shown in Fig. 2-42-1, and in the direction shown in Fig. 2-42-2(b). Turn the part A, shown in Fig. 2-42-2, counterclockwise to set the part B under the A/C plate of the A/C head assembly. Make sure that the spring hooks with the boss of the main plate shown in Fig. 2-42-2. Shift the part A in the direction shown by the arrow and release to make sure that it returns.

④ Insert the cleaning roller into the position shown in Fig. 2-42-1 to install it.

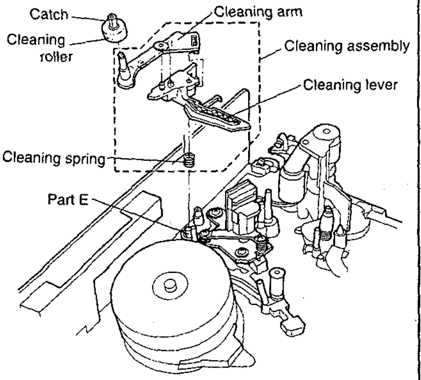

Catch
Cleaning arm
Cleaning roller
Cleaning assembly
Cleaning lever
Cleaning spring
Part E

Fig. 2-42-1

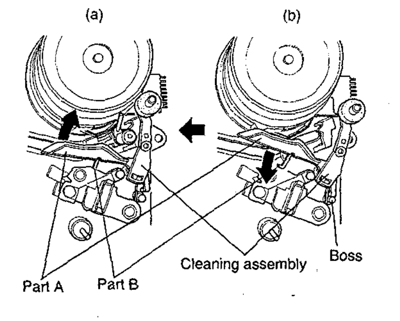

(a)
(b)
Part A
Part B
Cleaning assembly
Boss

Fig. 2-42-2

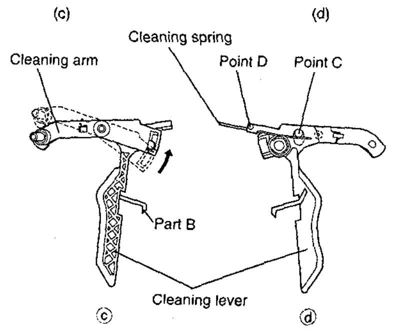

(c)
(d)
Cleaning spring
Cleaning arm
Point D
Point C
Part B
Cleaning lever
ⓒ
ⓓ

Fig. 2-42-3

2-43 Supply & Takeup Tape Guide Assemblies

(Removal)

① Remove the cassette housing.
(Refer to Para. 2-1 for the removal method.)

② Remove the PCB-HA/AUDIO.
(Refer to Para. 2-8 for the removal method.)

③ Remove the cleaning assembly.
(Refer to item ④ of Para. 2-42 for the removal method.)

④ Unscrew the three screws (ⓐ, ⓑ and ⓒ) to remove the drum base together with the drum assembly.
(Refer to Fig. 2-43-1.)

⑤ Slide the supply and takeup tape guide assemblies to the end of the loaded position by either of the following methods.

- Supply voltage (approximately 5V plus voltage on the red wire) to the loading motor as in ② of the removal method in Para. 2-19.
- Turn part A of pulley worm J by hand, in the direction shown by the arrow (a) as shown in Fig. 2-43-3. Raise the supply and takeup tape guide assemblies upward to remove them.

(Installation)

① Apply grease (PG-641) [859D055O30] to the area shown in Fig. 2-43-2 of the supply tape guide assembly.

② Install the supply and takeup tape guide assemblies so that they respectively enter the holes at the ends of the loading arms (SP and TU)attached to the reverse side of the deck as shown in Fig. 2-43-1.

③ Slide the supply and takeup tape guide assemblies to the unloaded position, by either of the following methods so that the upper hole of the mode switch aligns with that of the cogwheel as shown in Fig. 2-43-4.

- Supply voltage (approximately 5V), reversing the polarity used in ④ of the removal method, to the loading motor as ⑤ of the installation method in Para. 2-19.
- Turn part A of the pulley worm J by hand, in the direction shown by the arrow (b) as shown in Fig. 2-43-3.

④ Make sure that the hole of the gear joint J aligns with the matching mark of the main plate, and the matching mark of the gear pinch with that of the mode switch as shown in Fig. 2-43-5.

⑤ Install the drum base on which the drum assembly is attached and secure it with the three screws (ⓐ,ⓑ and ⓒ) as shown in Fig. 2-43-1.
(Tighten the screws in the order ⓐ→ⓑ→ⓒ.)

⑥ Install the cleaning assembly.
(Refer to Item ③ of Para. 2-42 for the installation method.)

⑦ Install the PCB-HA/AUDIO.
(Refer to Para. 2-8 for the installation method.)

⑧ Install the cassette housing.
(Refer to Para. 2-1 for the installation method.)

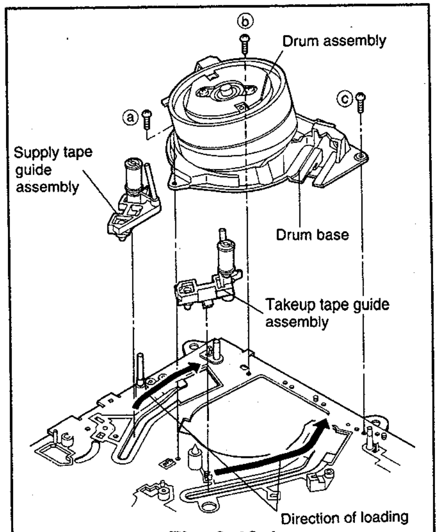

ⓑ
Drum assembly
ⓐ
ⓒ
Supply tape guide assembly
Drum base
Takeup tape guide assembly
Direction of loading

Fig. 2-43-1

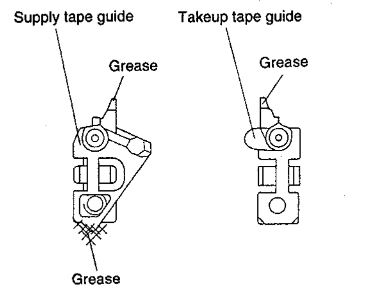

Supply tape guide
Takeup tape guide
Grease
Grease
Grease

Fig. 2-43-2

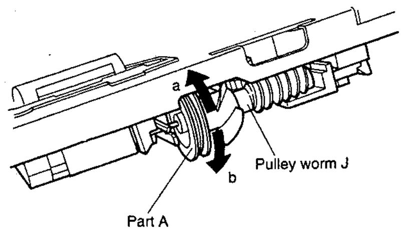

a
b
Pulley worm J
Part A

Fig. 2-43-3

2-44 Drum Base Spring

(Removal)

① Remove the drum base spring between the drum base and the drum assembly. (Refer to Fig. 2-44-1.)

Note: If the drum base spring is difficult to remove, remove the drum assembly in advance. (Refer to Para.2-10)

Note: During removal and installation of the drum assembly, do not touch the tape running surface with your hands.

(Installation)

① Set the drum base spring in the gap between the drum base and the drum assembly. Make sure that the drum base spring is secure enough not to fall out.

② Apply grease (PG-641) [859D055O30] to the area of the drum base spring as shown in Fig. 2-44-1.

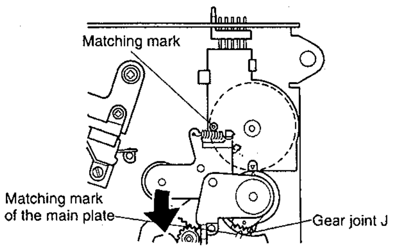

Matching mark
Matching mark of the main plate
Gear joint J

Fig. 2-43-4

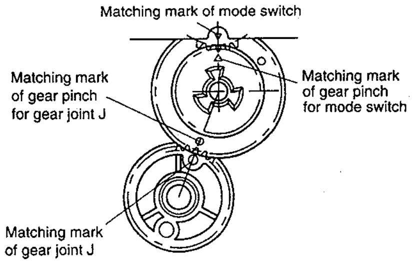

Matching mark of mode switch
Matching mark of gear pinch for gear joint J
Matching mark of gear pinch for mode switch
Matching mark of gear joint J

Fig. 2-43-5

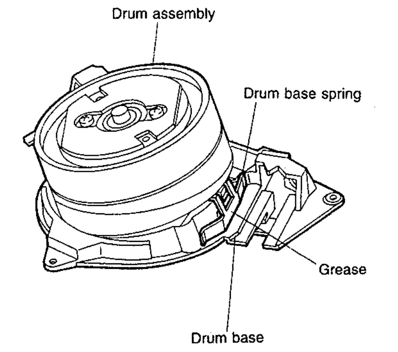

Drum assembly
Drum base spring
Grease
Drum base

Fig. 2-44-1

(Installation)

① Apply specified grease to the area (A~I) shown in Fig. 2-36-2 of the new cam plate-C.
Area A : (G) [859D055050]
Area B~I : (PG641) [859D055030]

② Position the cam plate-C so that the four points(ⓐ, ⓑ, ⓒ and ⓓ) shown in Fig. 2-36-1 enter into the matching holes and slide it to the right end.

③ Install the cam spring-C.

④ Install the cam plate-B, the roller-B, and the plate-J. (Refer to Para. 2-33 for the installation method.)

⑤ Install the main gear-J. (Refer to Para. 2-30 for the installation method.)

⑥ Install the loading motor assembly (which holds the motor holder). (Refer to Para. 2-35 for the installation method.)

⑦ Install the reel idler assembly. (Refer to Para. 2-35 for the installation method.)

⑧ Install the belt pulley and the reel belt. (Refer to Para. 2-28 for the installation method.)

2-37 Loading Arm (SP, TU)

(Removal)

① Remove the reel belt and the belt pulley. (Refer to Para. 2-28 for the removal method.)

② Remove the loading motor assembly (which holds the motor holder). (Refer to Para. 2-29 for the removal method.)

③ Remove the main gear-J. (Refer to Para. 2-30 for the removal method.)

④ Remove the plate-J, the roller-B, and the cam plate-B. (Refer to Para. 2-33 for the removal method.)

⑤ Raise the loading arms upward, first SP and then TU, to remove them. (Refer to Fig. 2-37-1)

(Installation)

① Move the takeup and supply tape guides to the unloaded position. If the supply tape guide is in the loaded position it will be necessary to shift the tension arm in the direction of the arrow in Fig. 2-37-2 at the same time moving the supply tape guide to the unloading position.

② Place the new loading arm (TU) in the position shown in Fig. 2-37-1, then place the loading arm (SP) in the position shown in Fig. 2-37-1 at the same time aligning the marks on the cogs, refer Fig. 2-37-3(shaded area).

③ Apply grease (G)[859D055050] to the area that touches the cogwheel of the loading arm (TU) when the loading arms (SP and TU) are shifted fully to the loading direction. Apply grease (G)[859D055050] to the gear portion that meshes with the plate cam B. (Refer to Fig.2-37-4.)

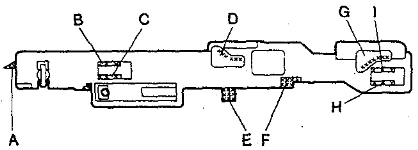


Fig. 2-36-2

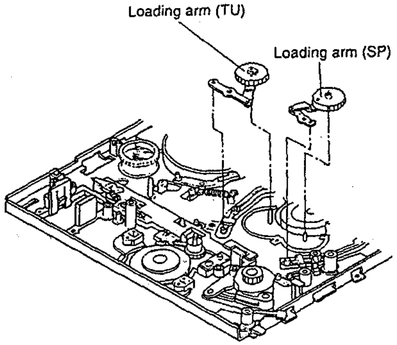


Fig. 2-37-1

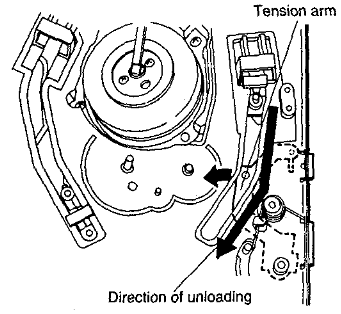


Fig. 2-37-2

④ Install the cam plate-B, the roller-B, and the plate-J. (Refer to Para. 2-33 for the installation method.)

⑤ Install the main gear-J. (Refer to Para. 2-30 for the installation method)

⑥ Install the loading motor assembly (which holds the motor holder). (Refer to Para. 2-29 for the installation method.)

⑦ Install the belt pulley and the reel belt. (Refer to Para. 2-28 for the installation method.)

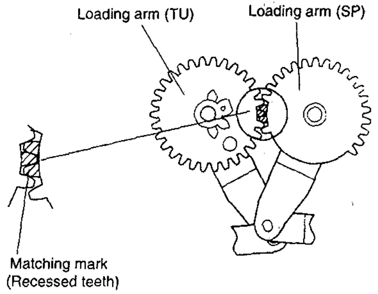


Fig. 2-37-3

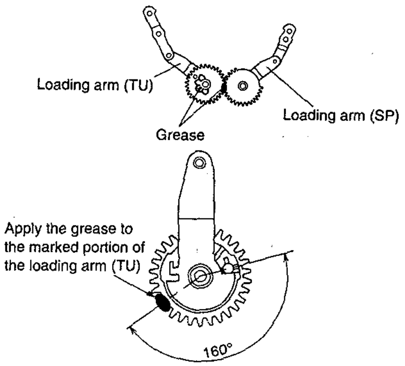

Loading arm (TU)
Loading arm (SP)
Grease
Apply the grease to the marked portion of the loading arm (TU)
160°

Fig. 2-37-4

2-38 Capstan Motor and Lead Card

Note: During removal and installation of the capstan motor, take care not to touch or score the tape running surface, and ensure there is no grease on the outside of the motor's rim.

(Removal)

① Unfasten the reel belt.

② Disconnect the lead card, connected to the PCB of the capstan motor and the PCB-HA/AUDIO. (Refer to Fig. 2-38-1.)

③ Turn the deck the right side up, remove the three screws shown in Fig. 2-38-2 to remove the capstan motor.

Note: During removal, support the capstan motor assembly when it is not secured by its fastening screws. Take care not to touch other parts.

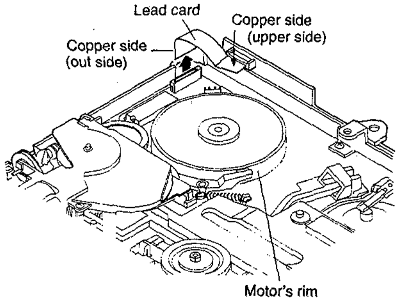


Fig. 2-38-1

(Installation)

① Reverse the deck, position the capstan motor so that the capstan brake is on the outside of the capstan motor.

② Turn the deck the right side up, secure the capstan motor with the three screws shown in Fig. 2-38-2.

③ Bend the new lead card as shown in Fig.2-38-3 and connect it to the connectors of the PCB of the capstan motor and the PCB-HA/AUDIO so that copper side appears as shown in Fig. 2-38-1. Take care not to touch the rotor of the capstan motor.

④ Install the reel belt.
(Refer to Para. 2-28 for the installation method.)

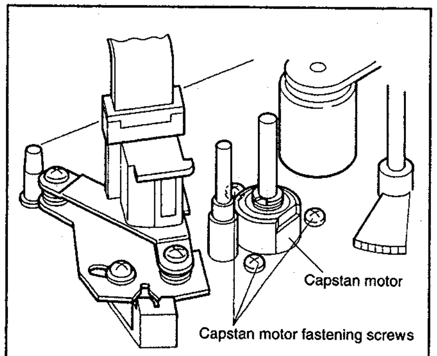


Fig. 2-38-2

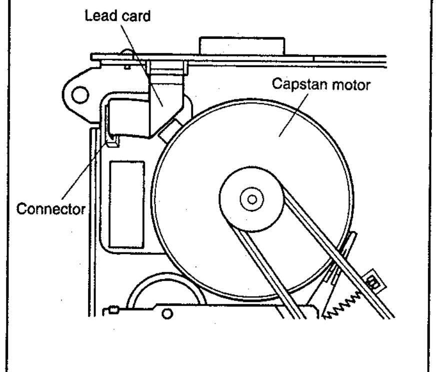


Fig. 2-38-3

2-39 A/C Head Assembly

(Removal)

Note: During installation of A/C head assembly, take care not to touch or score the tape running surface.

① Lift the stopper shown in Fig. 2-39-1 upward and disconnect the lead connector (bare wire), which is connected to the PCB-A/C-HEAD.

② Remove the two screws (ⓐ and ⓑ) holding the A/C head assembly to the main plate, and to remove the A/C head assembly. (Refer to Fig. 2-39-2.)

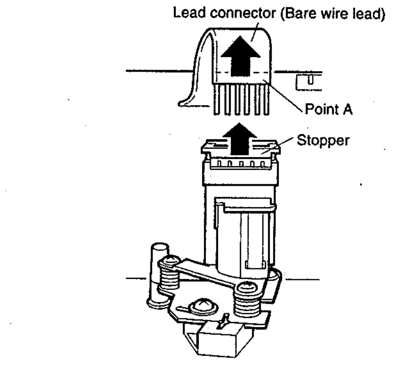


Fig. 2-39-1

(Installation)

① Make sure that the spring(A/C earth spring) is as shown in Fig. 2-39-3.

② Place the A/C head assembly in the position shown in Fig. 2-39-2 and secure it with the two screws(ⓐ and ⓑ).

③ Shift part A downward and lower the stopper. Connect the lead connector to the connector on the PCB-A/C-HEAD as shown in Fig. 2-39-1.

Note: Conduct the A/C head adjustment and the phase adjustment as outlined in Para. 3-3 and 3-4 after the new A/C head is installed.

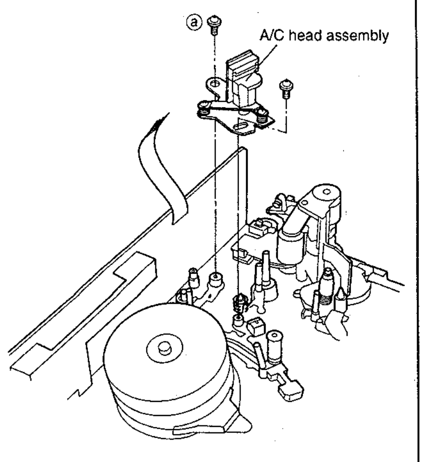


Fig. 2-39-2

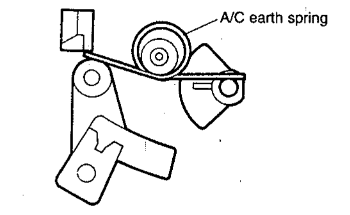


Fig. 2-39-3

2-40 A/C Head

(Removal)

① Disconnect the lead connector connected to the PCB-A/C-HEAD. (Refer to Item ① of Para. 2-39 for the removal method.)

② Remove the three screws(ⓐ,ⓑ and ⓒ), shown in Fig. 2-40-1 to remove the A/C head.

③ Unsolder the PCB-A/C HEAD from the A/C head.(Refer to Fig. 2-40-1.

(Installation)

① Install the A/C head with the A/C spring and the three screws(ⓐ,ⓑ and ⓒ) as shown in Fig. 2-40-1.

Note: When installing the A/C head on the A/C plate, the base plate of the A/C head must be parallel to the A/C plate and the spacing between them should be as specified in Fig. 2-40-2.

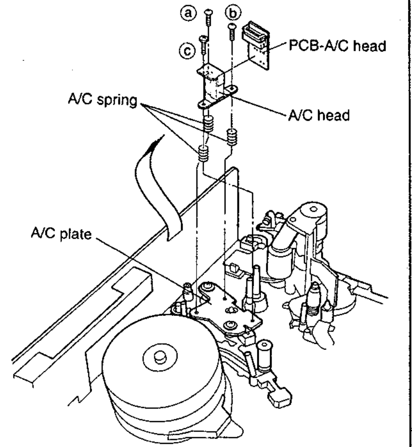


Fig. 2-40-1

2-33 Plate J, Roller B, and Cam Plate B

(Removal)

① Remove the two screws (ⓐ and ⓑ) to remove the plate J. (Fig. 2-33-1)
② Take off the cut washer fixed to the shaft of the loading arm (TU) to remove the roller B.
③ Remove the reel belt.
(Refer to Para. 2-28 for the removal method.)
④ Remove the belt pulley.
(Refer to Para. 2-28 for the removal method.)
⑤ Remove the loading motor assembly (which holds the motor holder).
(Refer to Para. 2-29 for the removal method.)
⑥ Remove the main gear J.
(Refer to Para. 2-30 for the removal method.)
⑦ Slide the cam plate B to the left (the direction shown by the arrow) to remove it.

(Installation)

① Apply grease (G) [859D055050] to the area shown in Fig. 2-33-2 of the new cam plate B.
② Align the loading arms TU and SP so that the matching marks of the cogs align. (Refer to Fig. 2-37-3)
③ Passing part A of the cam plate B under cam spring B insert it into the hole on the side of the main plate, as shown by the continuous line. (Refer to Fig. 2-33-1)
④ While keeping the rear section of cam plate B raised, align the cam plate B and the cam gear R so that the ○ mark on the cam plate B aligns with the part A on the cam gear R as shown in Fig.2-33-3 (Fig. A). Still keeping the rear of cam plate B raised, slide it to the right until the △ mark on cam plate B and aligns with the part B on the cam gear R, refer Fig. 2-33-3 (Fig. B). From this position lower the rear of the cam plate B unto the already aligned loading gears TU and SP, refer 2 above. Shift the sub off lever and the main brake TU in the directions shown by the arrows to install them. (Refer to Fig. 2-33-1)
⑤ Fix the roller B to the shaft of the loading arm (TU) and secure it with the new cut washer.
⑥ Install the plate J and secure it with the two screws (ⓐ and ⓑ).
⑦ Install the main gear J.
(Refer to Para. 2-30 for the installation method.)
⑧ Install the loading motor assembly (which holds the motor holder).
(Refer to Para. 2-29 for the installation method.)
⑨ Install the belt pulley.
(Refer to Para. 2-28 for the installation method.)
⑩ Fasten the reel belt.
(Refer to Para. 2-28 for the installation method.)

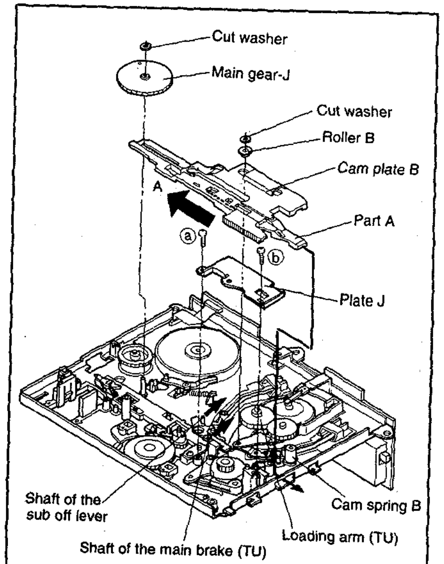


Fig. 2-33-1

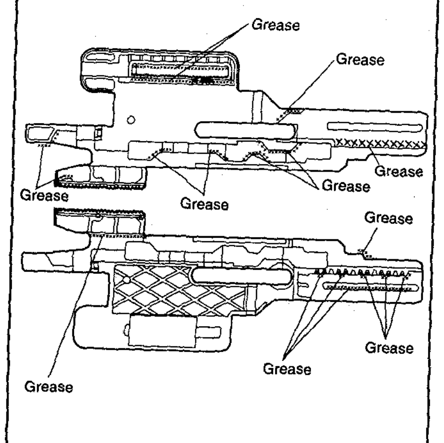


Fig. 2-33-2

2-34 Cam Gear R, Charge Lever, and Tension Off Lever

(Removal)

① Remove the cassette housing.
(Refer to Para. 2-1 for the installation method.)
② Turn the deck the right side up and detach the tension spring. (Refer to Fig. 2-34-4.)
③ Remove the charge assembly.
(Refer to item ② of Para. 2-18 for the removal method.)
④ Remove the reel belt and the pulley belt.
(Refer to Para. 2-28 for the removal method.)
⑤ Remove the loading motor assembly (which holds the motor holder).
(Refer to Para. 2-29 for the removal method.)
⑥ Remove the main gear J.
(Refer to Para. 2-30 for the removal method.)
⑦ Remove the plate J, the roller B, and the cam plate B.
(Refer to Para. 2-33 for the removal method.)
⑧ Raise the cam gear R upward to remove it.
(Refer to Fig. 2-34-1.)
⑨ Remove the charge lever. (Refer to Fig. 2-34-1.)
⑩ Remove the tension off lever. (Refer to Fig. 2-34-1.)

(Installation)

① Let part A pass through part B shown in Fig. 2-34-1 to install the tension off lever.
② Fix the charge lever to the shaft.
③ Apply grease (PG-641) [859D055030] to the area shown in Fig. 2-34-2 of the new cam gear R.
(The groove and the flank of the outside circumference.)
④ Insert the cam gear R so that part A is on the upside, with the charge lever set fully to the right end. Slowly turn the charge lever in the direction shown by the arrow until it enters the groove in the cam gear R.
(Refer to Fig. 2-34-3)
⑤ Install the cam plate B, the roller B, and the plate J.
(Refer to Para. 2-33 for the installation method.)
⑥ Install the main gear J.
(Refer to Para. 2-30 for the installation method.)
⑦ Install the loading motor assembly (which holds the motor holder).
(Refer to Para. 2-29 for the installation method.)
⑧ Install the belt pulley and the reel belt.
(Refer to Para. 2-28 for the installation method.)
⑨ Hook the tension spring in the position shown in Fig. 2-34-4.
⑩ Install the charge assembly.
(Refer to Item ⑤ of Para. 2-18 for the installation method.)
⑪ Install the cassette housing.
(Refer to Para. 2-1 about the installation method.)

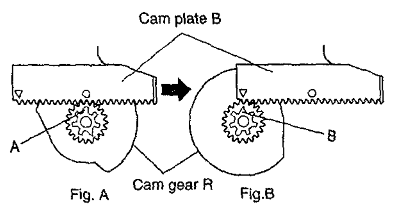


Fig. 2-33-3

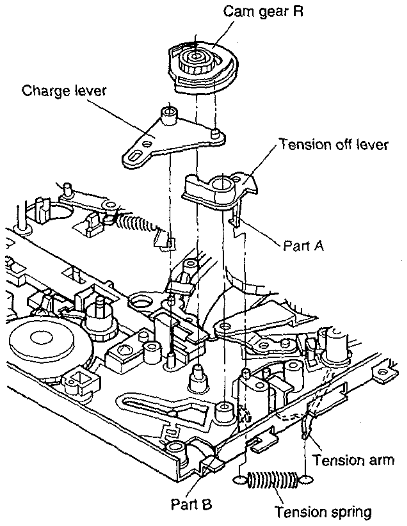


Fig. 2-34-1

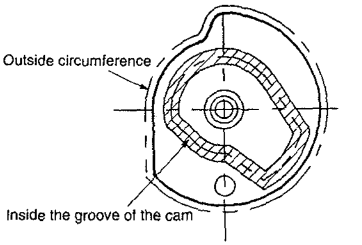


Fig. 2-34-2

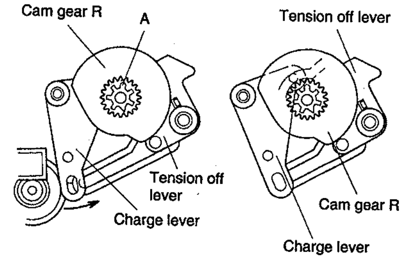

Cam gear R
A
Tension off lever
Tension off lever
Charge lever
Cam gear R
Charge lever

Fig. 2-34-3

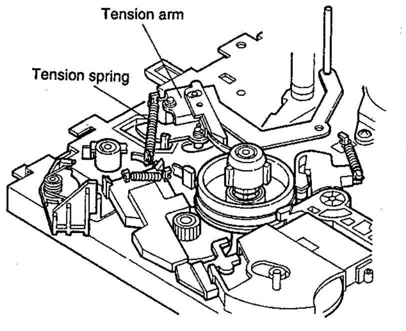

Tension arm
Tension spring

Fig. 2-34-4

2-35 Reel Idler Assembly

(Removal)

① Remove the reel belt and the belt pulley.
(Refer to Para. 2-28 for the removal method.)

② Remove the two screws (ⓐ and ⓑ) holding the reel idler assembly.

③ Unfasten the two catches shown in Fig. 2-35-2 and push the reel idler assembly to remove it, with the deck right side up.

(Installation)

① Insert the part B of the reel idler assembly under the plate cam B as shown in Fig. 2-35-1 and insure projection A enters the hole on the main plate. Position the reel idler assembly so that its screw holes are aligned and secure it with the two screws (ⓐ and ⓑ).
(Fig. 2-35-3 shows its appearance, viewing from the top.)

② Install the belt pulley and the reel belt.
(Refer to Para. 2-28 for the installation method.)

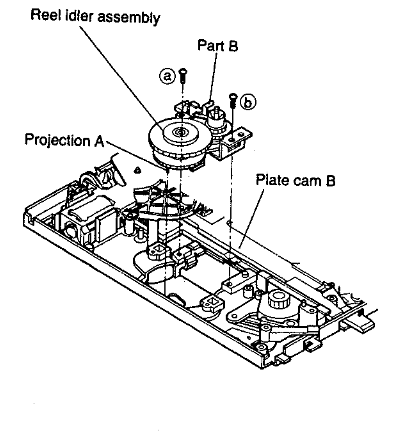

Reel idler assembly
Part B
ⓐ
ⓑ
Projection A
Plate cam B

Fig. 2-35-1

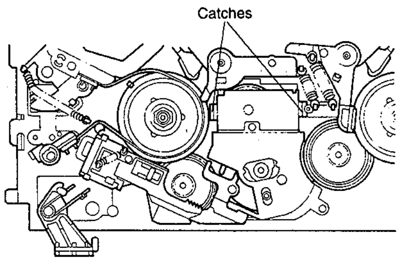


Fig. 2-35-2

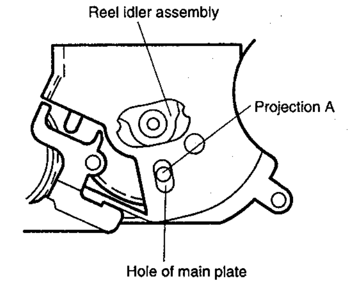

Reel idler assembly
Projection A
Hole of main plate

Fig. 2-35-3

2-36 Cam Plate C and Cam Spring C

(Removal)

① Remove the reel belt and the belt pulley. (Refer to Para. 2-28 for the removal method.)

② Remove the reel idler assembly. (Refer to Para. 2-35 for the removal method.)

③ Remove the loading motor assembly (which holds the motor holder). (Refer to Para. 2-29 for the removal method.)

④ Remove the main gear-J. (Refer to Para. 2-30 for the removal method.)

⑤ Remove the plate-J, the roller-B, and the cam plate-B. (Refer to Para. 2-33 for the removal method.)

⑥ Remove the cam spring-C. (Refer to Fig. 2-36-1.)

⑦ Slide the cam plate-C to the left end.

⑧ Unfasten the catch and raise the cam plate-C to remove it. (refer to Fig. 2-36-1.)

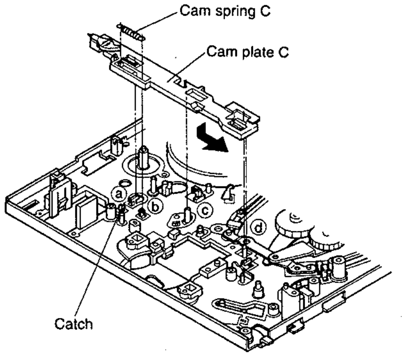

Cam spring C
Cam plate C
ⓐ
ⓑ
ⓒ
ⓓ
Catch

Fig. 2-36-1

9 Loading Motor Assembly, Pulley Worm J, Loading Motor Belt, and Gear A

moval)

Unfasten the reel belt. (Refer to Para. 2-28 for the removal method.)

Remove the three screws(ⓐ,ⓑ and ⓒ) as shown in Fig. 2-29-2 and unfasten the three catches to remove the loading motor assembly (which holds the motor holder). (Refer to Fig. 2-29-1)

Remove the loading motor belt from the motor pulley. (Refer to Fig. 2-29-3.)

) Unfasten the catches holding the motor holder to remove the loading motor assembly.
(Refer to Fig. 2-29-3.)

) Remove the pulley worm J, first the end attached to the part A shown in Fig. 2-29-3 and then the other end.

) Remove the cut washer and unfasten the catch holding Gear A. Remove Gear A.

⑦ Pull the motor pulley to remove it from the loading motor.

⑧ Disconnect the wires from the loading motor.

(Installation)

① Solder the leads to the loading motor.(Red lead wire to the positive terminal and white lead wire to the negative terminal.)

② Install the motor pulley on the loading motor so that the space between the loading motor and the outer edge of the motor pulley is 8.5±0.1mm. (Refer to Fig. 2-29-4)

③ Install the loading motor assembly so that the label on it faces part B, shown in Fig. 2-29-3.

④ Apply grease (G)[859D055O50] to the areas shown in Fig. 2-29-4 of the new pulley worm J. Install the pulley worm J, first the end attached to the part C shown in Fig.2-29-3 and then the other end.

⑤ Fix the gear A to the shaft of the motor holder J and secure it with new cut washers.

⑥ Lift the end attached to the part A shown in Fig. 2-29-3 of the pulley worm J. Fasten the loading motor belt on the pulley worm J and the motor pulley, taking care not to twist the belt.

⑦ Install the loading motor assembly(which holds the motor holder) in the position shown in Fig. 2-29-2 and secure it with the three screws(ⓐ,ⓑ and ⓒ).

⑧ Install the loading motor belt. (Refer to Para. 2-28 for the installation method.)

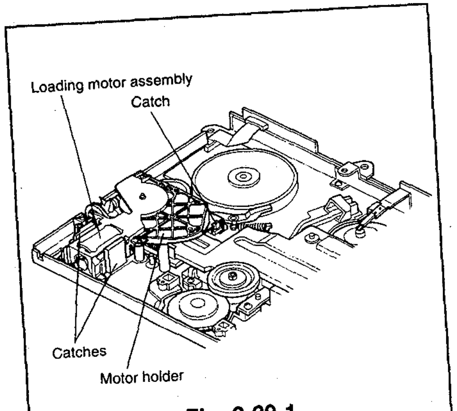

Loading motor assembly
Catch
Catches
Motor holder

Fig. 2-29-1

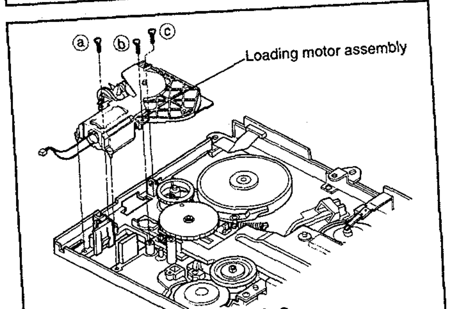

ⓐ
ⓑ
ⓒ
Loading motor assembly

Fig. 2-29-2

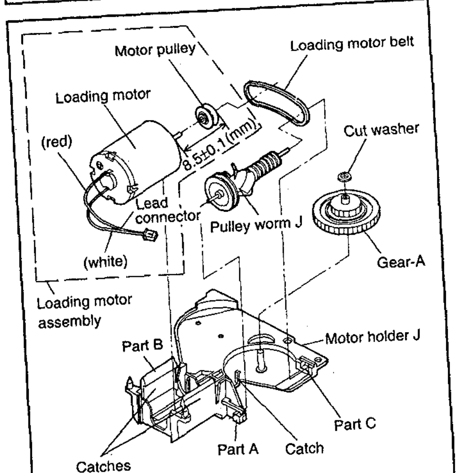

Motor pulley
Loading motor belt
Loading motor
(red)
8.5±0.1(mm)
Cut washer
Lead connector
Pulley worm J
(white)
Gear-A
Loading motor assembly
Part B
Motor holder J
Part C
Part A
Catch
Catches

Fig. 2-29-3

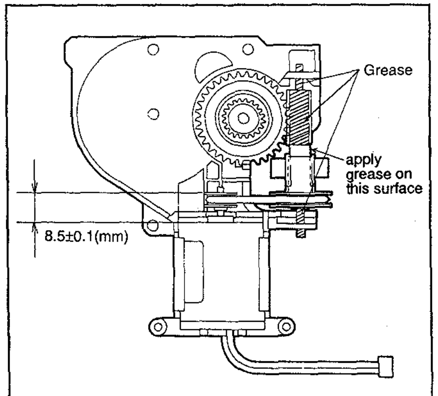

Grease
apply grease on this surface
8.5±0.1(mm)

Fig. 2-29-4

2-30 Main Gear J

(Removal)

① Remove the reel belt.
(Refer to Para. 2-28 for the removal method.)

② Remove the loading motor assembly (which holds the motor holder).
(Refer to Para. 2-29 for the removal method.)

③ Remove the cut washer mounted on the main gear J.

④ Raise the main gear J upward to remove it.

(Installation)

① Apply grease (G) [859D055O50] to the outside cogs, the groove of the cam and to the inside small cogs of the new main gear J. (Refer to Fig. 2-30-2.)

② Make sure that the cam plate B is set to the right side, viewed from the bottom side of the deck. (Eject mode)

③ Push the axis of the main brake (TU) in the direction shown by the arrow until the main brake release lever moves freely. Turn the deck the right side up and shift the axis of the main brake release lever in the direction shown by the arrow. Then fix the main gear J to the shaft, with the axis of the main brake release lever held in place. Secure the main plate J with the cut washer. (Refer to Fig. 2-30-3) (Insert the pin of the capstan brake in the outside groove of the main gear J and align the matching marks of gear joint J and the main gear J.) (Refer to Fig. 2-30-4)

④ Install the loading motor assembly (which holds the motor holder) and the reel belt.
(Refer to Para. 2-28 for the installation method.)

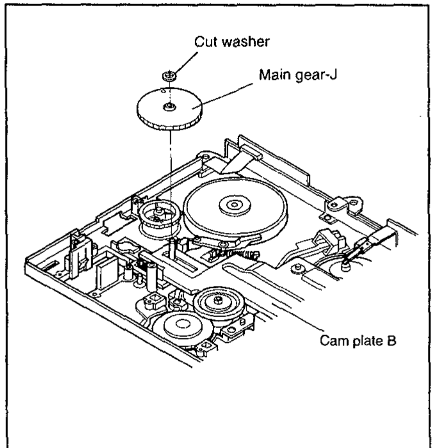

Cut washer
Main gear-J
Cam plate B

Fig. 2-30-1

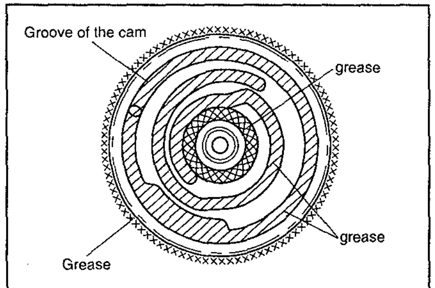

Groove of the cam
grease
grease
Grease

Fig. 2-30-2

2-31 Gear Joint J

(Removal)

① Remove the reel belt. (Refer to Para. 2-28 for the removal method.)
② Remove the loading motor assembly (which holds the motor holder). (Refer to Para. 2-29 for the removal method.)
③ Raise the gear joint J upward to remove it. (Refer to Fig. 2-31-1)

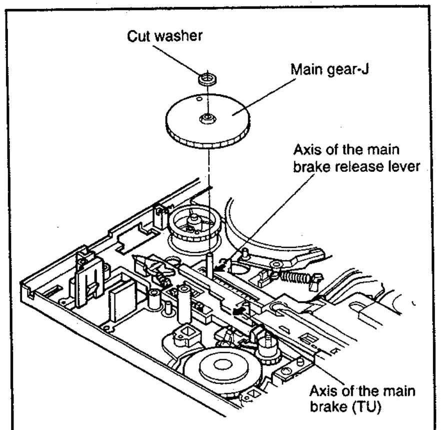

Cut washer
Main gear-J
Axis of the main brake release lever
Axis of the main brake (TU)

Fig. 2-30-3

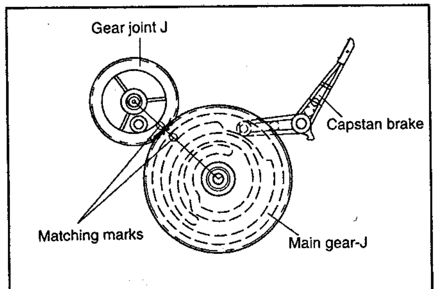

Gear joint J
Capstan brake
Matching marks
Main gear-J

Fig. 2-30-4

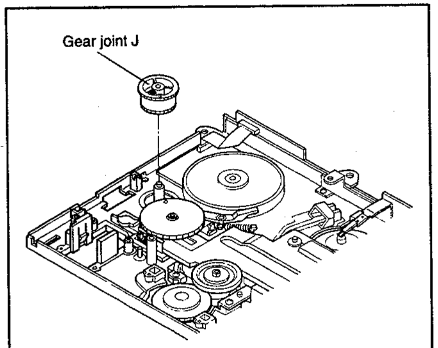

Gear joint J

Fig. 2-31-1

(Installation)

① Apply grease (PG-641)[859D055030] to the new gear joint J on the whole circumference of the small cogwheel as shown in Fig. 2-31-2.
② Fix the gear joint J to the shaft so that the matching mark of the gear joint J aligns with that of the main gear as shown in Fig. 2-30-4.
③ Turn the deck the right side up, make sure that the matching mark of the gear pinch aligns with that of the gear joint J. (When turning the deck, hold the gear joint J, in place.)(Refer to Fig. 2-31-3)
④ Install the loading motor assembly(which holds the motor holder). (Refer to Para. 2-29 for the installation method.)
⑤ Install the reel belt. (Refer to Para. 2-28 for the installation method.)

2-32 Capstan Brake and Capstan Brake Spring

(Removal)

① Remove the reel belt. (Refer to Para. 2-28 for the removal method.)
② Remove the loading motor assembly(which holds the motor holder). (Refer to Para. 2-29 for the removal method.)
③ Remove the main gear J. (Refer to Para. 2-30 for the removal method.)
④ Raise the capstan brake upward to remove it along with the capstan brake spring. (Refer to Fig. 2-32-1.)

(Installation)

① Install the capstan brake and the capstan brake spring.
② Install the main gear J. (Refer to Para. 2-30 for the installation method.)
③ Install the loading motor assembly(which holds the motor holder). (Refer to Para. 2-29 for the installation method.)
④ Fasten the reel belt. (Refer to Para. 2-28 for the installation method.)

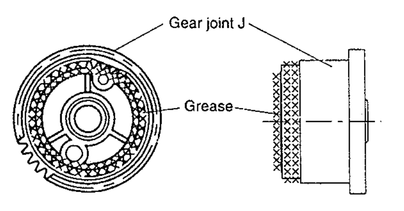

Gear joint J
Grease

Fig. 2-31-2

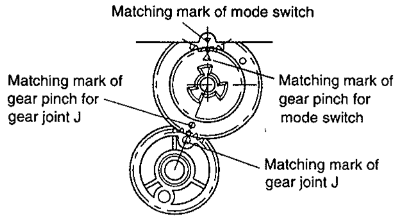

Matching mark of mode switch
Matching mark of gear pinch for gear joint J
Matching mark of gear pinch for mode switch
Matching mark of gear joint J

Fig. 2-31-3

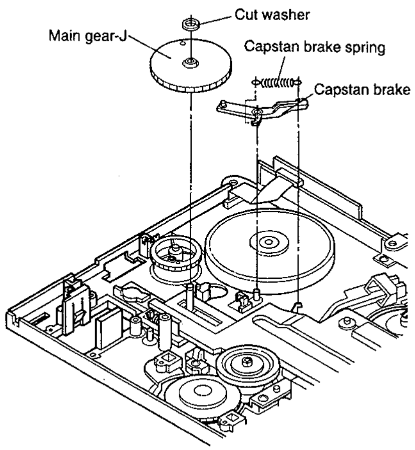

Cut washer
Main gear-J
Capstan brake spring
Capstan brake

Fig. 2-32-1

justment of Takeup Guide Arm Height]

djust the height of the takeup guide arm according to he following procedure.

Place the height adjusting jig (for the F deck) in the reference position on the main plate (Refer to Fig. 2-20-3). Tighten the takeup guide arm fastening nut so that the lower flange of the takeup guide arm is level with point B of the height adjusting jig (for the E deck). (Refer to Fig. 2-24-6).

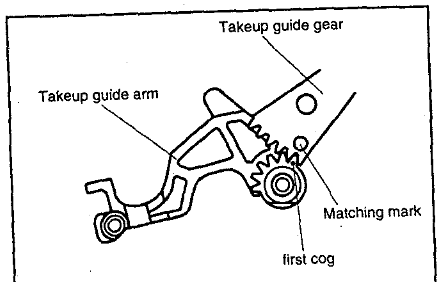

Takeup guide gear
Takeup guide arm
Matching mark
first cog

Fig. 2-24-4

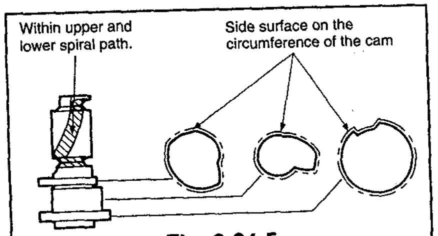

Within upper and lower spiral path.
Side surface on the circumference of the cam

Fig. 2-24-5

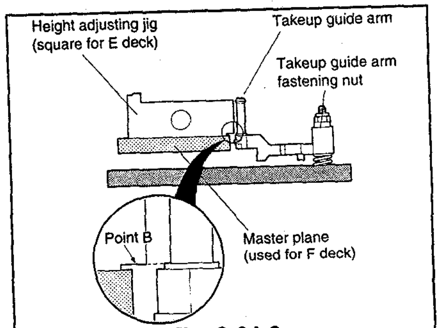

Height adjusting jig (square for E deck)
Takeup guide arm
Takeup guide arm fastening nut
Point B
Master plane (used for F deck)

Fig. 2-24-6

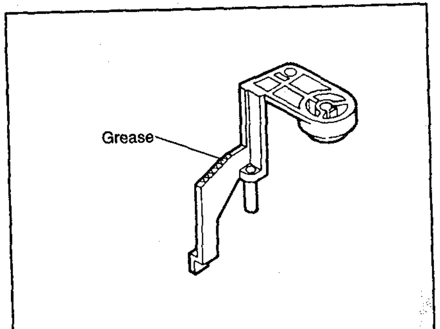


Fig. 2-24-7

2-25 Pinch Roller, Roller Cap, Pinch Spring, and Pinch Cam Spring

Note: During removal and installation, do not expand the pinch spring more than 18mm and the pinch cam spring more than 27mm.

(Removal)

① Pry the pinch roller and the roller cap to remove them as shown in Fig. 2-25-1.

② Remove the pinch spring and the pinch cam spring.

(Installation)

① Install the pinch cam spring and the pinch spring making sure that the pinch arm, the pinch slider, and the pinch lever are composed as shown in Fig. 2-25-2.

② Install the pinch roller so that the side, with the widest aluminium bushing, is on the roller cap side. Push the roller cap inside to secure the pinch roller.(Refer to Fig. 2-25-3)

Note: There are two types of pinch rollers as shown in Fig. 2-25-3. Each should be installed in the direction shown below.

(Type A)

The side on which aluminum is wider is attached the roller cap.

(Type B)

The convex portion is attached on the roller cap.

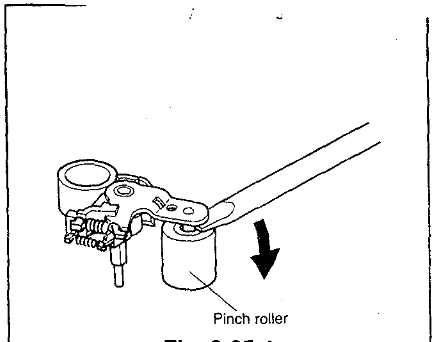

Pinch roller

Fig. 2-25-1

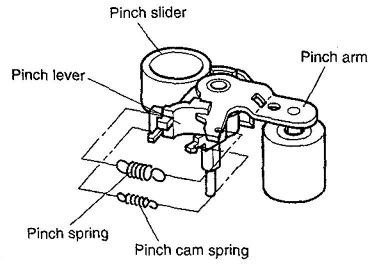

Pinch slider
Pinch arm
Pinch lever
Pinch spring
Pinch cam spring

Fig. 2-25-2

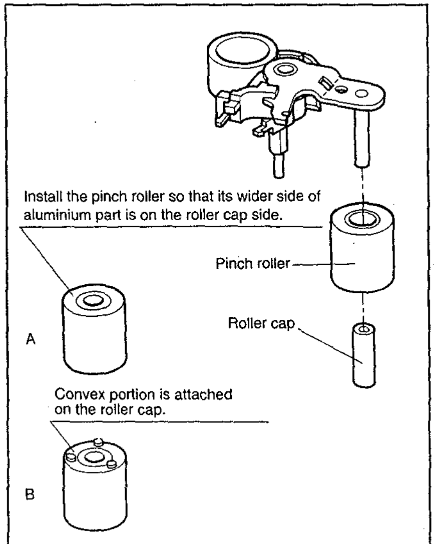

Install the pinch roller so that its wider side of aluminium part is on the roller cap side.
Pinch roller
Roller cap
A
Convex portion is attached on the roller cap.
B

Fig. 2-25-3

2-26 Mode Switch

(Removal)

① Remove the pinch cam cap, the pinch roller arm assembly, the pinch cam, and the takeup guide gear.
(Refer to Para. 2-24 for the removal method.)

② Unsolder the five soldered terminals connecting the PCB-HA/AUDIO to the mode switch.
(Refer to Fig. 2-26-1).

③ Unfasten two catches holding the mode switch.
(Refer to Fig. 2-26-2.)

④ Slowly remove the mode switch, making sure that it is completely unsoldered.

(Installation)

① Insert the five pins and the boss of the mode switch shown in Fig. 2-26-1 into the matching holes of the PCB-HA/AUDIO. Place the mode switch on the main plate so that the matching mark of the gear pinch aligns with that of the mode switch and fasten it with the catches as shown in Fig. 2-26-3. (Also make sure that the matching mark of the gear joint aligns with that of the gear pinch.)

② Install the takeup guide gear, the pinch cam, the pinch roller arm assembly, and the pinch cam cap.
(Refer to Para. 2-24 for the installation method.)

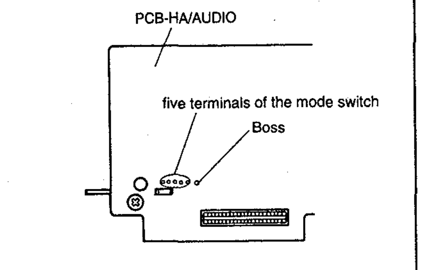

PCB-HA/AUDIO
five terminals of the mode switch
Boss

Fig. 2-26-1

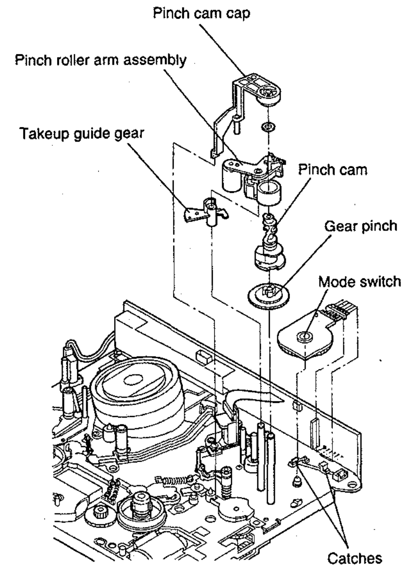

Pinch cam cap
Pinch roller arm assembly
Takeup guide gear
Pinch cam
Gear pinch
Mode switch
Catches

Fig. 2-26-2

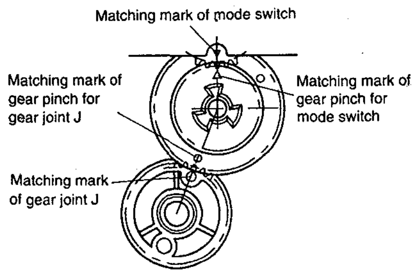

Matching mark of mode switch
Matching mark of gear pinch for gear joint J
Matching mark of gear pinch for mode switch
Matching mark of gear joint J

Fig. 2-26-3

2-27 FE Head (Refer to Fig. 2-27-1.)

(Removal)

① Disconnect the lead connector, connected to the FE head.

② Remove the screw(ⓐ) to remove the FE head.

(Installation)

① Secure the FE head with the screw(ⓐ) and connect the lead connector to the FE head. (Route the lead connector, which is fastened with the catch as shown in Fig. 2-27-1, through the hook of the main plate.)

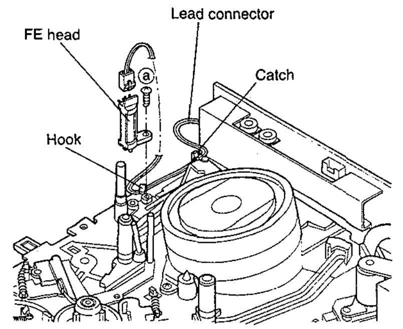

FE head
Lead connector
Catch
Hook
ⓐ

Fig. 2-27-1

2-28 Reel Belt and Belt Pulley

(Removal)

① Unfasten the reel belt from the capstan motor and the belt pulley.

② Release the belt pulley as shown in Fig. 2-28-1 and raise the belt pulley upward to remove it.

(Installation)

Note: When installing the reel belt, make sure it is clean and free of grease.(Clean with dry gauze only)

① Fasten the belt pulley to the shaft.(When fixing the belt pulley to the shaft of the idler assembly, make sure that the three convex parts of the washer fixed to the shaft enter the matching dents.

② Secure the belt pulley with the new cut washer.

③ Install the reel belt on the capstan motor and the belt pulley, taking care that the belt is not twisted.

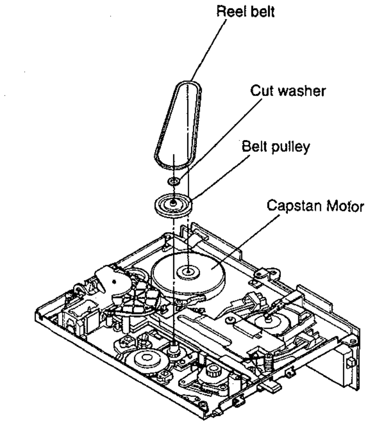

Reel belt
Cut washer
Belt pulley
Capstan Motor

Fig. 2-28-1

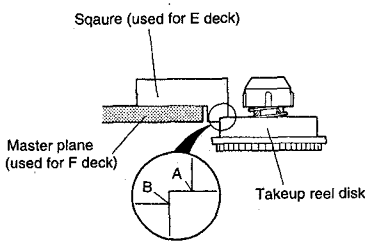

Sqaure (used for E deck)
Master plane
(used for F deck)
A
B
Takeup reel disk

Fig. 2-20-4

2-21 Supply Reel Disk

(Removal)

① Remove the cassette housing. (Refer to Para. 2-1 for the removal method.)
② Remove the sub brake(SP) and the sub spring(SP). (Refer to Para. 2-14 for the removal method.
③ Raise the part B of the tension brake belt upward to unfasten the belt from the supply reel disk as shown in Fig. 2-21-2. (Refer to Para. 2-19 for the removal method.)
④ Unfasten the catch shown in Fig. 2-21-1 and raise the supply reel disk upward to remove it from the shaft.

(Installation)

① Install the supply reel disk on the shaft.
② Install the height adjusting jig [master plane](used for F deck: Part No.859C342020) in the specified position. (Insert the jig into the hole A shown in Fig. 2-20-3 so that the jig sets on part B and the end of part C. Take care that the jig does not touch the supply and takeup reel disks.)
③ Place the height adjusting jig [square](used for E deck: Part No.859C341070) on the jig, previously installed placed in Item ④, as shown in Fig. 2-21-3. Make sure that the height is correct (between A and B).
④ Adjust the height of the supply reel disk by varying the number of the washers(Part No.552C017020) under the disk.
A) If it is high, remove washer(s).
B) If it is low, add washer(s).

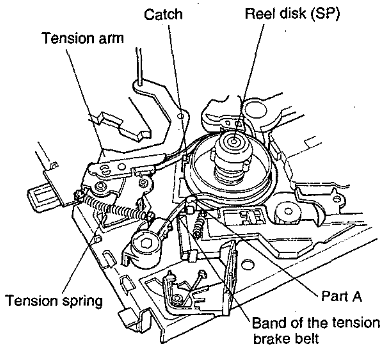

Catch
Reel disk (SP)
Tension arm
Tension spring
Part A
Band of the tension
brake belt

Fig. 2-21-1

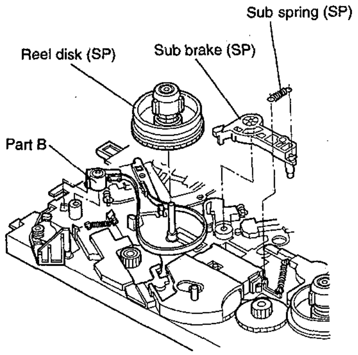

Sub spring (SP)
Reel disk (SP)
Sub brake (SP)
Part B

Fig. 2-21-2

⑤ Fasten the tension brake belt round on the supply reel disk, taking care not to score the belt and route part B of the tension brake belt as shown in Fig. 2-21-2. (Refer to Para. 2-19 for the installation method.) (The band of the tension brake belt must pass outside of the catch shown in Fig. 2-21-1 and inside of the part A.)
⑥ Install the sub brake(SP) and the sub spring(SP). (Refer to Para. 2-14 for the installation method.)
⑦ Install the cassette housing. (Refer to Para. 2-1 for the installation method.)

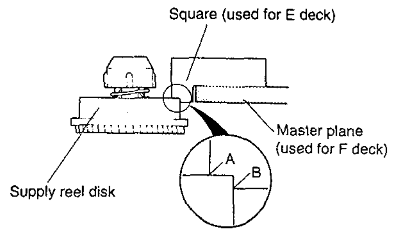

Square (used for E deck)
Master plane
(used for F deck)
A
B
Supply reel disk

Fig. 2-21-3

2-22 Gear R(supply side) (Refer to Fig. 2-22-1.)

(Removal)

① Remove the cassette housing. (Refer to Para. 2-1 for the removal method.)
② Remove the sub brake(SP) and the sub spring(SP). (Refer to Para. 2-14 for the removal method.)
③ Unfasten the tension brake belt from the supply reel disk and remove the supply reel disk. (Refer to Para. 2-21 for the removal method.)
④ Remove the charge assembly. (Refer to item ② of Removal in Para. 2-18 for the removal method.)
⑤ Raise the gear R(SP) upward to remove it from the shaft.

(Installation)

① Install the gear R(SP) on the shaft.
② Install the supply reel disk. (Refer to Para. 2-21 for the installation method.)
③ Install sub brake(SP) and sub spring(SP). (Refer to Para. 2-14 for the installation method.)
④ Install the charge assembly. (Refer to Item ⑤ of Para. 2-18 for the installation method.)
⑤ Install the cassette housing. (Refer to Para. 2-1 for the installation method.)

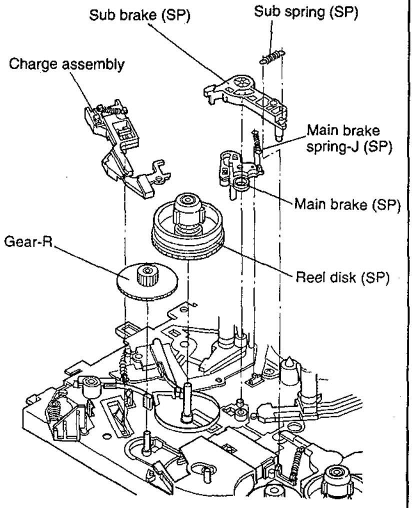

Sub brake (SP)
Sub spring (SP)
Charge assembly
Main brake
spring-J (SP)
Main brake (SP)
Gear-R
Reel disk (SP)

Fig. 2-22-1

2-23 Main Brake Release Lever (Refer to Fig. 2-23-1.)

(Removal)

① Remove the cassette housing. (Refer to Para. 2-1 for the removal method.)

② Remove the sub brake(SP), and the sub spring(SP). (Refer to Para. 2-14 for the removal method.)

③ Remove the sub off lever, the sub brake(TU), and the sub spring(SP). (Refer to Para. 2-16 for the removal method.)

④ Remove the main brake(TU) and the main brake spring J(TU). (Refer to Para. 2-17 for the removal method.)

⑤ Shift catch A of the main brake release lever, and push catch B at the same time, in the direction shown by each arrow. Unfasten catch B from the main plate to remove the main brake release lever. (Refer to Fig. 2-23-2).

(Installation)

① Install the main brake release lever so that the shaft enters the inside groove shown in Fig. 2-23-3 of the main gear J.

② Install the main brake(TU) and the main brake spring J(TU). (Refer to Para. 2-17 for the installation method.)

③ Install the sub brake(TU), the sub off lever, and the sub spring(TU). (Refer to Para. 2-16 for the installation method.)

④ Install the sub brake(SP) and the sub spring(SP). (Refer to Para. 2-14 for the installation method.)

⑤ Install the cassette housing. (Refer to Para. 2-1 for the installation method.)

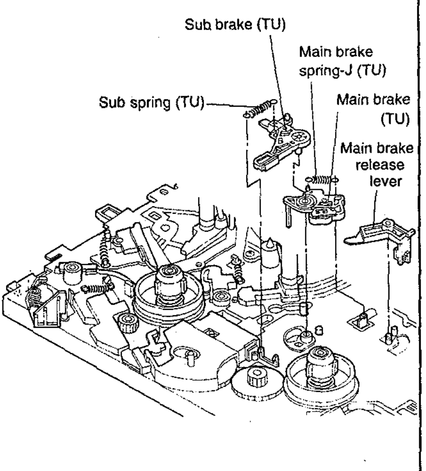

Sub brake (TU)
Main brake spring-J (TU)
Sub spring (TU)
Main brake (TU)
Main brake release lever

Fig. 2-23-1

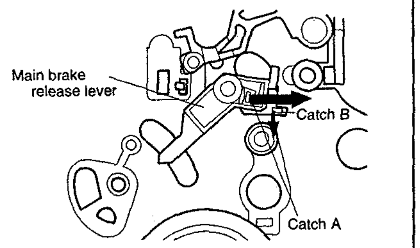

Main brake release lever
Catch B
Catch A

Fig. 2-23-2

Insert the boss of the main brake release lever into the position shown in the figure below of the main gear J.

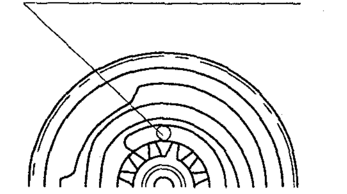


Fig. 2-23-3

2-24 Pinch Cam Cap, Pinch Roller Arm Assembly, Pinch Cam, Takeup Guide Gear, Gear Pinch, Takeup Guide Arm, and Takeup Guide Spring

(Removal)

① Unfasten the catch shown in Fig. 2-24-1 and raise the pinch cam cap upward to remove it.

② Raise the pinch roller arm assembly upward to remove it.

③ Raise the pinch cam and the takeup guide gear upward to remove them from the shaft.

④ Unfasten the two catches holding the mode switch and remove the gear pinch from the shaft, lift the mode switch only high enough to remove the gear pinch. (Take care not to break the pins of the mode switch.)

⑤ Remove the nut at the top of the takeup guide arm with a (5.5mm) box screw driver.

⑥ Raise the takeup guide arm upward to remove it.

⑦ Remove the takeup guide spring.

(Installation)

① Hook one end of the takeup guide spring with the takeup guide arm, fix the takeup guide spring to the shaft.

② Apply grease (PG-641) [859D055O30] around the top of the new takeup guide arm (the surface which touches with the nut). Fix the takeup guide arm to the shaft, and secure it with the nut. (Set the takeup guide arm to the height shown in Fig. 2-24-2 temporarily.)

③ Lift the mode switch, only high enough to install the gear pinch and place the gear pinch under the mode switch. Fix the mode switch to the shaft so that the matching marks of the gear pinch align with those of the gear joint J and the mode switch as shown in Fig. 2-24-3.

④ Install the takeup guide gear so that the first cog of the takeup guide arm aligns with the matching mark on the takeup guide gear as shown in Fig. 2-24-4.

⑤ Apply grease (G) [859D055O50] to the area shown in Fig. 2-24-5 of the new pinch cam.

⑥ Turn the takeup guide arm clockwise while inserting the pinch cam into the gear pinch. Install the pinch cam so that it aligns with the triple catch. (Excessive rotation of the takeup guide arm will keep it from returning, since the takeup guide gear is caught on the pinch roller cam.)

⑦ Apply the grease (PG-641) [859D055O30] to the new pinch cam cap on the area shown in Fig. 2-24-7.

⑧ Install the pinch roller arm assembly and the pinch cam cap.

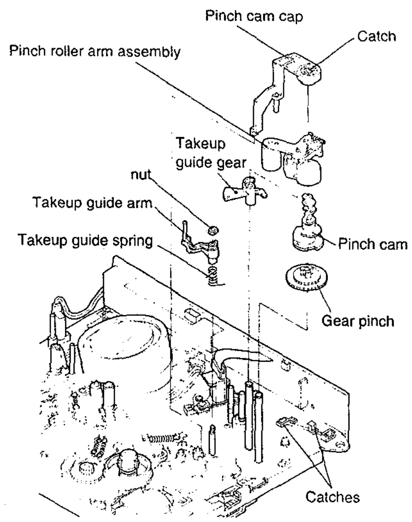

Pinch cam cap
Catch
Pinch roller arm assembly
Takeup guide gear
nut
Takeup guide arm
Takeup guide spring
Pinch cam
Gear pinch
Catches

Fig. 2-24-1

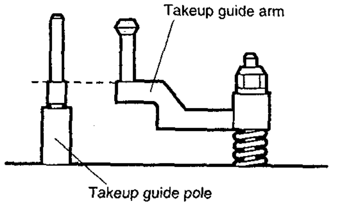

Takeup guide arm
Takeup guide pole

Fig. 2-24-2

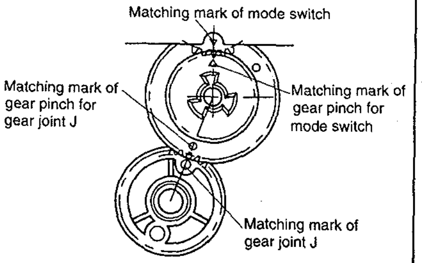

Matching mark of mode switch
Matching mark of gear pinch for gear joint J
Matching mark of gear pinch for mode switch
Matching mark of gear joint J

Fig. 2-24-3

(Installation)

① Insert the catch in the position of the tension arm as shown in Fig. 2-19-3 to fasten the tension brake belt on the tension arm. (Take care not to let projection C, next to the catch of the tension brake belt touch the tension arm.)

② Install the tension arm, where the tension brake belt is fastened, on the main plate.

③ Fasten the tension brake belt around the supply reel disk. (The band of the tension brake belt must pass the outside of the catch shown in Fig. 2-19-2 and inside of the part B.)

④ Attach the tension spring.

⑤ Install the sub brake(SP) and sub spring(SP). (Refer to Para. 2-14 for the installation method.)

⑥ Supply voltage(approximately 5V), reversing the polarity used in ② of the Removal method, to set the motor to the unloaded position.

⑦ Make sure that the holes (matching mark M) on the body and cogwheel of the mode switch align with each other as shown in Fig. 2-19-4. At the same time confirm that the hole of the gear pinch aligns with the matching marks of the gear joint J and the ▽mark on the mode switch cogwheel,refer to Fig. 2-19-5. This indicates the J deck is in the EJECT mode.

⑧ If the deck is not completely set to the eject mode, turn part D of the pulley worm J by hand to set the eject mode.

Turn in the direction a ······ for loading
Turn in the direction b ······ for unloading
(Refer to Fig. 2-19-6)

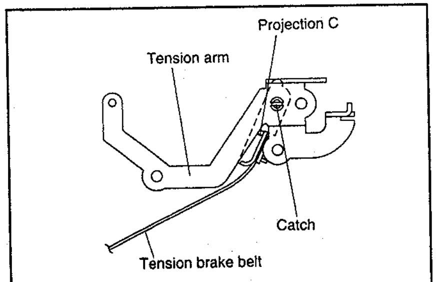

Projection C
Tension arm
Catch
Tension brake belt

Fig. 2-19-3

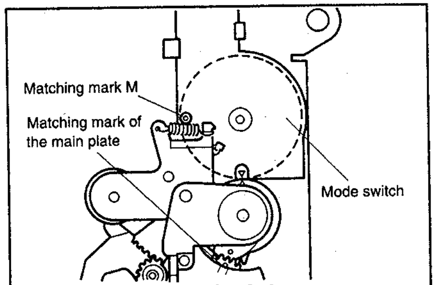

Matching mark M
Matching mark of the main plate
Mode switch

Fig. 2-19-4

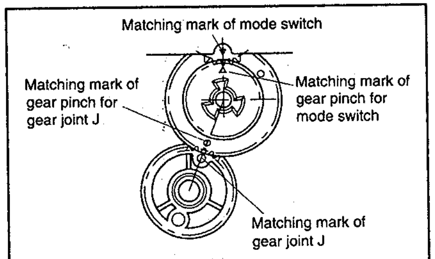

Matching mark of mode switch
Matching mark of gear pinch for gear joint J
Matching mark of gear pinch for mode switch
Matching mark of gear joint J

Fig. 2-19-5

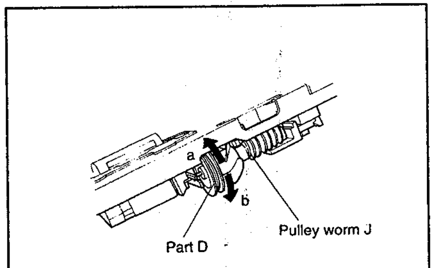

a
b
Part D
Pulley worm J

Fig. 2-19-6

2-20 Takeup Reel Disk and Gear R(takeup side)

(Removal)

① Remove the cassette housing. (Refer to Para. 2-1 for the removal method.)

② Remove the sub brake(SP) and the sub spring(SP). (Refer to Para. 2-14 for the removal method.)

③ Remove the sub off lever, the sub brake(TU), and the sub spring(TU). (Refer to Para. 2-16 for the removal method.)

④ Unfasten the catch shown in Fig. 2-20-1 and raise the takeup reel disk upward to remove it from the shaft.

⑤ Raise the gear R(takeup side) upward to remove it from the shaft. (Refer to Fig. 2-20-2.)

(Installation)

① Install the gear R(takeup side) on the shaft. (Refer to Fig. 2-20-2.)

② Install the takeup reel disk on the shaft.(Refer to Fig. 2-20-2)

③ Install the height adjusting jig [master plane](used for F deck: Part No.859C342020) in the specified position. (Insert the jig into hole A, shown in Fig. 2-20-3, so that the jig sets on part B and the end of part C. Take care that the jig does not touch the supply and takeup reel disks.)

④ Place the height adjusting jig [square](used for E deck: Part No.859C341070) on the jig installed in Item ③ as shown in Fig. 2-20-4. Make sure that the height is correct (between A and B).

⑤ Adjust the height of the supply reel disk by varying the number of the washers (Part No.552C017020) under the disk.
A) If it is high, remove washer(s).
B) If it is low, add washer(s).

⑥ Install the sub brake(TU), the sub off lever, and the sub spring(TU). (Refer to Para. 2-16 for the installation method.)

⑦ Install the sub brake(SP) and the sub spring(SP). (Refer to Para. 2-14 for the installation method.)

⑧ Install the cassette housing. (Refer to Para. 2-1 for the installation method.)

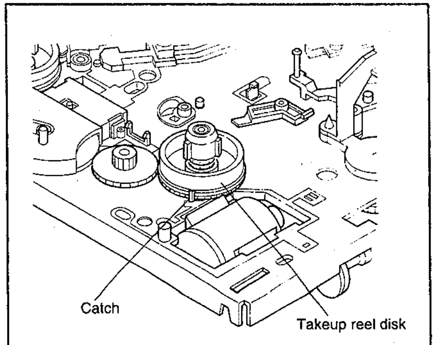

Catch
Takeup reel disk

Fig. 2-20-1

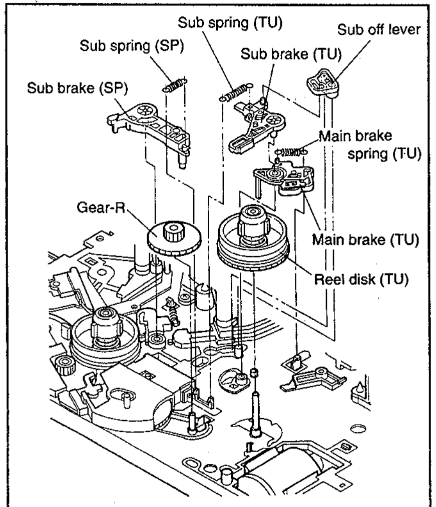

Sub spring (TU)
Sub off lever
Sub spring (SP)
Sub brake (TU)
Sub brake (SP)
Main brake spring (TU)
Gear-R
Main brake (TU)
Reel disk (TU)

Fig. 2-20-2

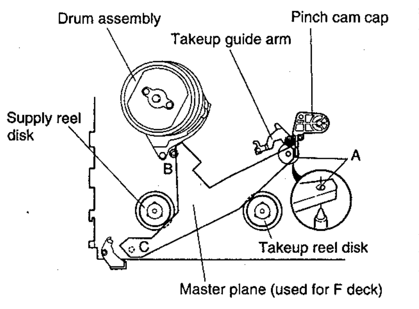

Drum assembly
Pinch cam cap
Takeup guide arm
Supply reel disk
B
A
C
Takeup reel disk
Master plane (used for F deck)

Fig. 2-20-3

2-17 Main Brake(TU) and Main Brake Spring J(TU)

(Removal)

① Remove the cassette housing. (Refer to Para. 2-1 for the removal method.)

② Remove the sub brake(SP) and the sub spring(SP). (Refer to Para. 2-14 for the removal method.)

③ Remove the sub off lever, the sub brake(TU), and the sub spring(TU). (Refer to Para. 2-16 for the removal method.)

④ Remove the main brake spring J(TU) and raise the main brake(TU) upward to remove it. (Refer to Fig. 2-17-1.)

(Installation)

① Install the main brake(TU) on the main plate assembly so that the coupling portion with the main brake release lever is as shown in Fig. 2-17-2.

② Install the main brake spring J(TU).

③ Install the sub brake(TU), the sub off lever, and the sub spring(TU). (Refer to Para. 2-16 for the installation method.)

④ Install the sub brake(SP) and the sub spring(SP). (Refer to Para. 2-14 for the installation method.)

⑤ Install the cassette housing. (Refer to Para. 2-1 for the installation method.)

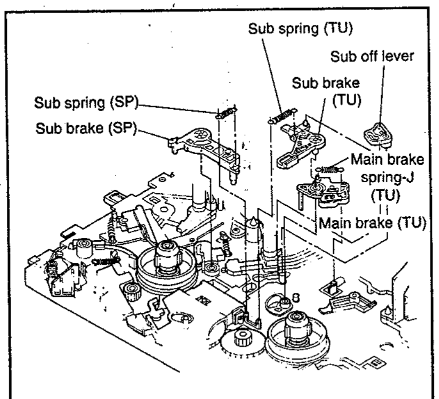

Sub spring (TU)
Sub off lever
Sub brake (TU)
Sub spring (SP)
Sub brake (SP)
Main brake spring-J (TU)
Main brake (TU)

Fig. 2-17-1

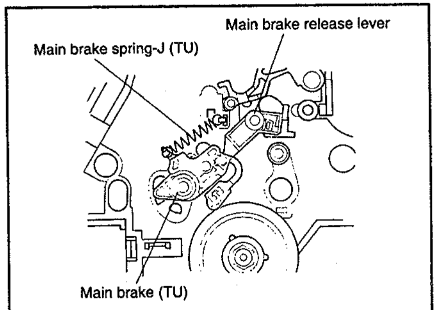

Main brake release lever
Main brake spring-J (TU)
Main brake (TU)

Fig.2-17-2

2-18 ID Swing Lever, Revolution Lever, and Revolution Spring

(Removal)

① Remove the cassette housing. (Refer to Para. 2-1 for the removal method.)

② Reverse the deck and remove the grip ring attached to the shaft G of the charge assembly.

③ Unfasten the two catches(A, B) to remove the charge assembly.

④ Remove the revolution spring with a tweezers.

⑤ Slide the revolution lever in the direction shown by the arrow and unfasten it from the catch C of the ID swing lever.(Refer to Fig. 2-18-1)

⑥ Detach the charge spring from the ID swing lever.

(Installation)

① Apply the grease(PG-641)[859D055030] to the areas shown in Fig. 2-18-2 of the new revolution lever and the ID swing lever.

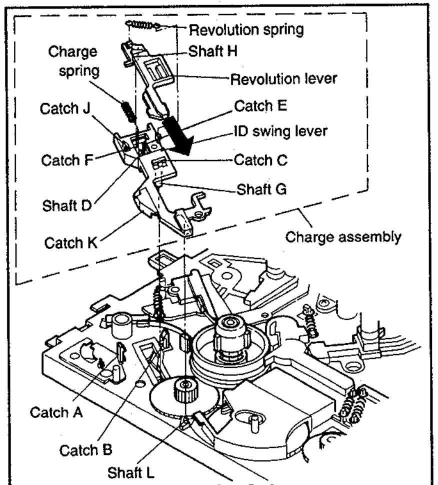

Revolution spring
Charge spring
Shaft H
Revolution lever
Catch J
Catch E
ID swing lever
Catch F
Catch C
Shaft G
Shaft D
Catch K
Charge assembly
Catch A
Catch B
Shaft L

Fig. 2-18-1

② Fix the charge spring to shaft D of the ID swing lever and compress it to hook its ends with the catches E and F.(Refer to Fig. 2-18-1)

Note: The charge spring should be installed in the directions shown below.

(Longitudinal Direction)

The bent tip is attached on the shaft D.

(Traverse Direction)

The wider semicircle is on the left as shown in Fig. 2-18-1.

③ Align the shaft H of the revolution lever with the position shown in Fig. 2-18-1. Insert catch C of the ID swing lever into the hole of the revolution lever, pushing the charge spring with a revolution lever in the direction shown by the arrow. At the same time, hook the ends of the revolution lever with the catches J and K.

④ Attach the revolution spring with a tweezers.

⑤ Install the charge assembly so that shaft G enters into the oval hole of the charge lever on the reverse side of the deck and the groove of the charge assembly fits the shaft as shown in Fig. 2-18-1. Secure the charge assembly with the catch A and B.

⑥ Reverse the deck and fix the new grip ring to the shaft G of the charge assembly.

⑦ Install the cassette housing. (Refer to Para. 2-1 for the installation method.)

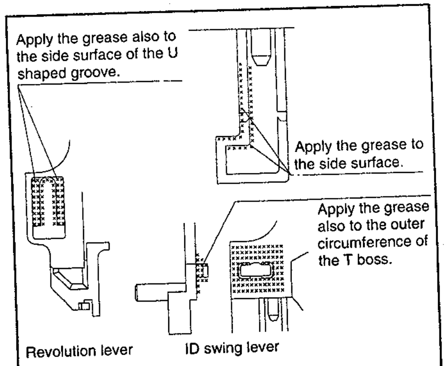

Apply the grease also to the side surface of the U shaped groove.
Apply the grease to the side surface.
Apply the grease also to the outer circumference of the T boss.
Revolution lever
ID swing lever

Fig. 2-18-2

2-19 Tension Arm, Tension Brake Belt, and Tension Spring

Note: During removal and installation, take care not to change the shape of the tension brake belt.

(Removal)

① Remove the cassette housing. (Refer to Para. 2-1 for removal method.)

② Supply a voltage(approximately 5V DC plus voltage on the red wire) to the loading motor and slide the tape guide assembly completely to the loaded position,to set it to the loaded position.

③ Remove the sub brake(SP) and the sub spring(SP). (Refer to Para. 2-14 for the removal method.)

④ Unfasten the catch of the part A on the tension brake belt and raise the part A to unfasten the tension brake belt from the supply reel disk.(Refer to Fig. 2-19-1)

⑤ Remove the tension spring, unfasten the catch shown in Fig. 2-19-2, and raise the tension arm upward to remove it.

⑥ Reverse the tension arm, unfasten the catch with a tweezers as shown in Fig. 2-19-3 to remove the tension brake belt.

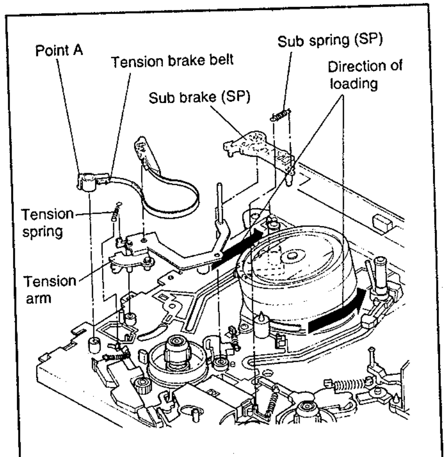

Point A
Tension brake belt
Sub spring (SP)
Direction of loading
Sub brake (SP)
Tension spring
Tension arm

Fig. 2-19-1

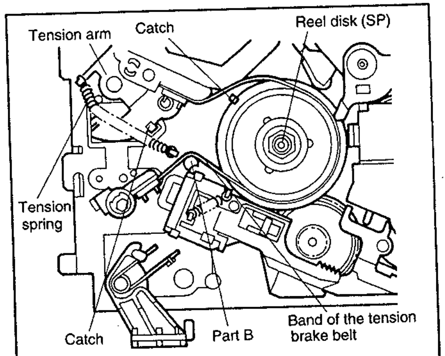

Tension arm
Catch
Reel disk (SP)
Tension spring
Catch
Part B
Band of the tension brake belt

Fig. 2-19-2

2-12 Safety Spring and Safety Lever

(Removal)

① Remove the cassette housing. (Refer to Para. 2-1 for the removal method.)
② Unhook the safety spring with a tweezers.
③ Turn the safety lever clockwise and remove by raising it upward as shown in Fig. 2-12-2.

(Installation)

① Install the safety lever so that part A aligns with the hole on the main plate, shown in Fig. 2-12-1, and part B with the hole of the safety arm on the reverse side of the deck.
② Fix the safety spring to the shaft of the safety lever and hook it as shown in Fig. 2-12-3.
③ Install the cassette housing.(Refer to Para. 2-1 for the installation method.)

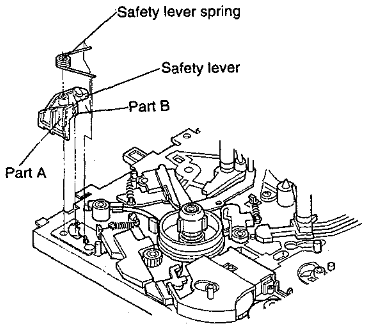

Safety lever spring
Safety lever
Part B
Part A

Fig. 2-12-1

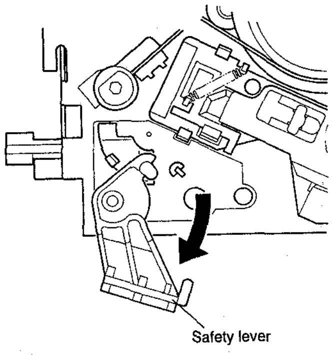

Safety lever

Fig. 2-12-2

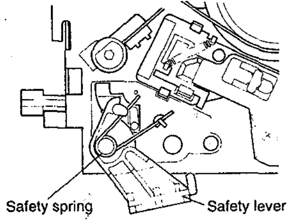

Safety spring
Safety lever

Fig. 2-12-3

2-13 Safety Arm

(Removal)

① Remove the cassette housing. (Refer to Para. 2-1 for the removal method.)
② Remove the safety spring and the safety lever. (Refer to Para. 2-12 for the removal method.)
③ Unfasten the catch to remove the safety arm. (Refer to Fig. 2-13-1).

(Installation)

① Reverse the deck and fix the safety arm to the shaft of the main plate so that its catch is within the range shown in Fig. 2-13-2.
② Install the safety spring and the safety lever. (Refer to Para. 2-12 for the installation method.)
③ Install the cassette housing. (Refer to Para. 2-1 for the installation method.)

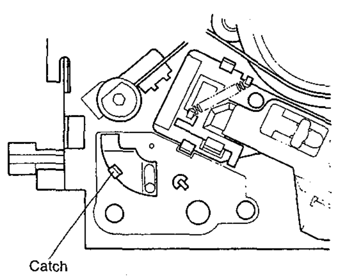


Fig. 2-13-1

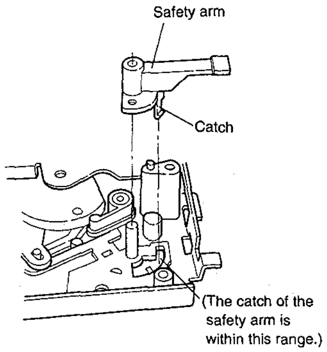

Safety arm
Catch
(The catch of the safety arm is within this range.)

Fig. 2-13-2

2-14 Sub Brake(SP) and Sub Spring(SP)

(Removal)

① Remove the cassette housing. (Refer to Para. 2-1 for the removal method.)
② Detach the sub spring(SP).
③ Reverse the deck and unfasten the catch with a small screw driver, etc., to remove the sub brake(SP) as shown in Fig. 2-14-2.

(Installation)

① Install the sub brake(SP) with care not to score the tension brake belt(without loosening of the tension brake belt).(Refer to Fig. 2-14-1)
② Attach the sub spring(SP).
③ Install the cassette housing.(Refer to Para. 2-1 for the installation method.)

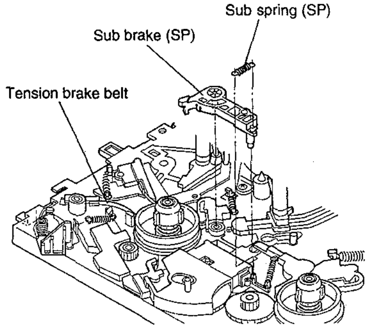

Sub spring (SP)
Sub brake (SP)
Tension brake belt

Fig. 2-14-1

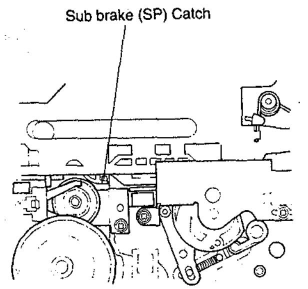

Sub brake (SP) Catch

Fig. 2-14-2

2-15 Main Brake (SP) and Main Brake Spring J(SP) (Refer to Fig. 2-15-1.)

(Removal)

① Remove the cassette housing. (Refer to Para. 2-1 for the removal method.)
② Remove the sub brake(SP) and the sub spring(SP). (Refer to Para. 2-14 for the removal method.)
③ Unhook the main brake spring J(SP).
④ Raise the main brake(SP) upward to remove it.

(Installation)

① Install the main brake(SP) on the main plate and attach the main brake spring J(SP).
② Install the sub brake(SP) and the sub spring(SP). (Refer to Para. 2-14 for the installation method.)
③ Install the cassette housing. (Refer to Para. 2-1 for the installation method.)

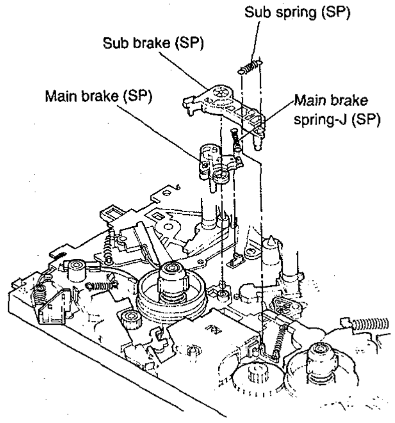

Sub spring (SP)
Sub brake (SP)
Main brake (SP)
Main brake spring-J (SP)

Fig. 2-15-1

2-16 Sub Off Lever, Sub Brake (TU), and Sub Spring (TU)

(Removal)

① Remove the cassette housing. (Refer to Para. 2-1 for the removal method.)
② Remove the sub brake (SP) and the sub spring (SP). (Refer to Para. 2-14 for the removal method.)
③ Unfasten the catch with a small screw driver, etc., and raise the sub off lever upward to remove it. (Refer to Fig. 2-16-2)
④ Remove the sub spring (TU). (Refer to Fig. 2-16-1.)
⑤ Unfasten the catch with a small screw driver, etc., and raise the sub brake (TU) upward to remove it as shown in Fig. 2-16-2.

(Installation)

① Apply the grease (PG-641)[859D055O30] to the area shown in Fig. 2-16-3.
② Install the sub brake (TU) on the main plate.
③ Install the sub off lever so that the hole A aligns with the boss of the sub brake (TU) as shown in Fig. 2-16-1.
④ Install the sub spring (TU).
⑤ Install the sub brake (SP) and the sub spring (SP). (Refer to Para. 2-14 for the installation method.)
⑥ *Install the cassette housing.* (Refer to Para. 2-1 for the installation method.)

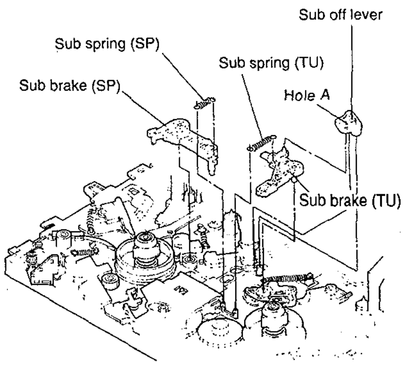

Sub off lever
Sub spring (SP)
Sub spring (TU)
Sub brake (SP)
Hole A
Sub brake (TU)

Fig. 2-16-1

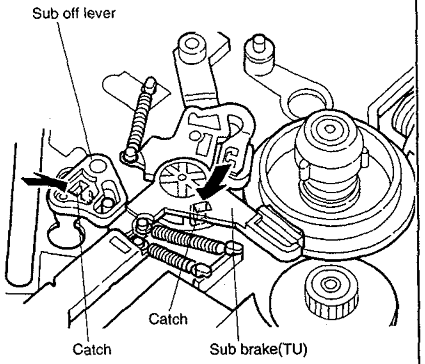

Sub off lever
Catch
Catch
Sub brake(TU)

Fig. 2-16-2

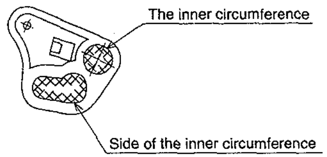

The inner circumference
Side of the inner circumference

Fig. 2-16-3

2-7 Jut

(Removal)

① Follow the removal method in Items ① to ⑥ of Para. 2-6.

② Unfasten the four catches (ⓐ, ⓑ, ⓒ and ⓓ) shown in Fig. 2-7-1 to remove the jut and the jut spring.

(Installation)

① Install the jut and the jut spring as shown in Fig. 2-7-1. (Insert the jut spring into the part A of the jut before installing the jut. Hook one end of the jut spring with the outside of the catch (ⓐ) and the other end with part B of the jut.)

② Install the bottom plate according to the installation method in ③ of Para. 2-6.

③ Follow the installation method in Items ⑤ to ⑧ in Para. 2-2.

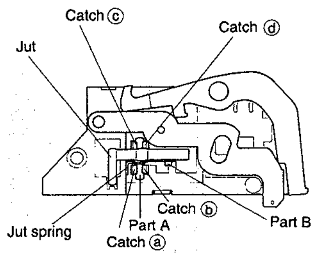

Catch ⓒ
Catch ⓓ
Jut
Catch ⓑ
Part A
Part B
Jut spring
Catch ⓐ

Fig. 2-7-1

2-8 PCB-HA/AUDIO

(Removal)

① Unfasten the hook and raise the head amp shield cover shown in Fig. 2-8-1 to remove it.

② Unsolder the terminals of the mode switch, the drum motor, and the rotary transformer shown in Fig. 2-8-1.

③ Lift the stopper of the A/C head assembly in Fig. 2-8-4 slightly upward and disconnect the lead connector (bare wire), connecting the PCB-HA/AUDIO and the PCB-A/C-HEAD.

④ Disconnect the lead connector (point A), connected to the FE head. (Refer to Fig. 2-8-2.)

⑤ Reverse the deck and disconnect the lead card, connecting the PCB of the capstan motor and the PCB-HA/AUDIO. (Refer to Fig. 2-8-3.)

⑥ Remove the three screws (ⓐ, ⓑ and ⓒ) and slowly pull the PCB-HA/AUDIO in the direction shown by the arrows. (Refer to Fig. 2-8-1.)

(Installation)

① Insert the terminals of the mode switch, the drum motor, and the rotary transformer, and the boss, adjacent to the mode switch, in the matching holes on the PCB-HA/AUDIO and secure the PCB-HA/AUDIO with the three screws (ⓐ, ⓑ and ⓒ) in the order, ⓑ→ⓒ→ⓐ. (Refer to Fig. 2-8-1)

② Solder the pins mentioned in Item ①.

③ Reverse the deck and reconnect the lead card connecting the PCB of the capstan motor and the PCB-HA/AUDIO. (Refer to Fig. 2-8-3) Take care not to fit lead card upside down.

④ Connect the lead connector, connected to the FE head, to the point A. (Refer to Fig. 2-8-2.)

⑤ Shift part B of the bare wire lead extended from the head amp slightly downward, lower the stopper, and connect it to the connector on the PCB-A/C-HEAD. (Refer to Fig. 2-8-4)

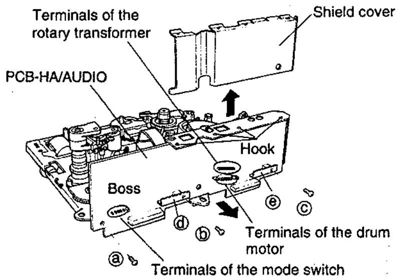

Terminals of the rotary transformer
Shield cover
PCB-HA/AUDIO
Hook
Boss
ⓔ
ⓒ
ⓓ
ⓑ
Terminals of the drum motor
ⓐ
Terminals of the mode switch

Fig. 2-8-1

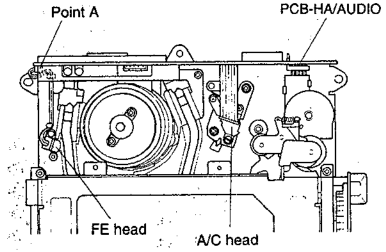

Point A
PCB-HA/AUDIO
FE head
A/C head

Fig. 2-8-2

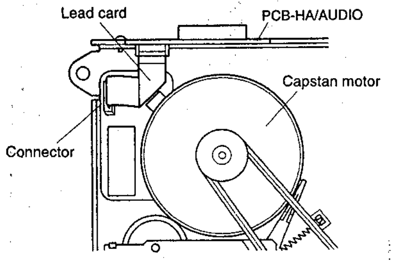

Lead card
PCB-HA/AUDIO
Capstan motor
Connector

Fig. 2-8-3

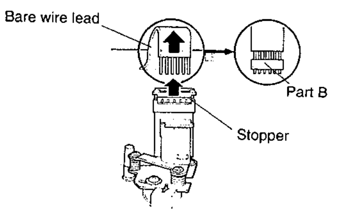

Bare wire lead
Part B
Stopper

Fig. 2-8-4

2-9 Brush (Refer to the Fig.2-9-1.)

(Removal)

① Reverse the deck and remove the three screws (ⓐ, ⓑ and ⓒ) to remove the brush.

(Installation)

① Attach the brush on the position shown in Fig. 2-9-1 and secure it with the screws ⓐ and ⓑ. Tighten screw ⓒ.

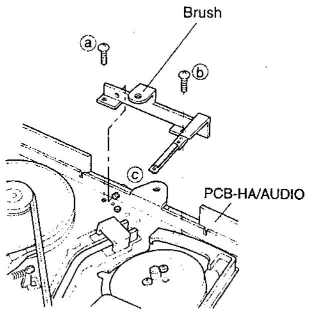

Brush
ⓐ
ⓑ
ⓒ
PCB-HA/AUDIO

Fig. 2-9-1

2-10 Drum Assembly

Note: When removing and installing the drum assembly, do not touch the tape running surface with your hands.

Note: Take care not to bend the PCB-HA/AUDIO.

(Removal)

① Remove the cassette housing.
(Refer to Para. 2-1 for the removal method.)

② Remove the PCB-HA/AUDIO.
(Refer to Para. 2-8 for the removal method.)

③ Unscrew the three screws (ⓐ, ⓑ and ⓒ) on the reverse side of the deck and remove the drum assembly.
(Refer to Fig. 2-10-1.)

④ Slowly raise the drum assembly upward, take care not to touch other parts around it. (Do not touch the tape running surface of the drum with your hand.)

Note: During removal, support the drum assembly when it is not secured by fastening screws.

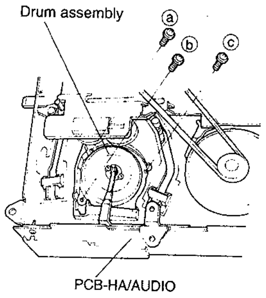

Drum assembly
ⓐ
ⓑ
ⓒ
PCB-HA/AUDIO

Fig. 2-10-1

(Installation)

① Carefully place the new drum assembly on the main plate of the deck, take care not to touch other parts.

② Holding the drum assembly, reverse the deck and secure the drum assembly with the three screws (ⓐ, ⓑ and ⓒ). (Tighten the screws in the order ⓐ→ⓑ→ⓒ and finally tighten again ⓐ.) (Refer to Fig. 2-10-1.)

③ Install the PCB-HA/AUDIO.
(Refer to Para. 2-8 for the installation method.)

④ Install the cassette housing.
(Refer to Para. 2-1 for the installation method.)

[Another Method]

(Removal)

① Remove the cassette housing.
(Refer to Para. 2-1 for the removal method.)

② Unsolder the soldered pins on the terminal of the drum assembly and the terminal of the rotary transformer. (Refer to Fig. 2-10-2)

③ Unscrew the three screws (ⓐ, ⓑ and ⓒ) on the reverse side of the deck and remove the drum assembly. (Refer to Fig. 2-10-1.)

④ Slightly raise the drum assembly in the opposite direction of the pins. Remove the pins of the drum assembly and of the rotary transformer from the PCB-HA/AUDIO. Slowly remove the drum assembly, take care not to touch other parts around it.

(Installation)

① Carefully place the drum assembly on the main plate, take care not to touch the other parts around it. The pins of the drum assembly and the rotary transformer must enter the holes of the PCB-HA/AUDIO.

② Secure the drum assembly with the three screws (ⓐ, ⓑ and ⓒ) on the reverse side of the deck. (Tighten the screws in the order ⓐ→ⓑ→ⓒ and finally tighten ⓐ again.) (Refer to Fig. 2-10-1.)

③ Solder the pins of the drum assembly and the rotary transformer. (Refer to Fig. 2-10-2.)

④ Install the cassette housing.
(Refer to Para. 2-1 for the installation method.)

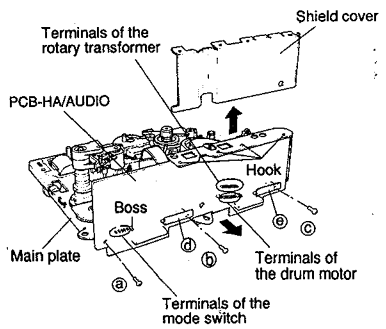

Terminals of the rotary transformer
Shield cover
PCB-HA/AUDIO
Hook
Boss
ⓔ
ⓒ
Main plate
ⓓ
ⓑ
Terminals of the drum motor
ⓐ
Terminals of the mode switch

Fig. 2-10-2

2-11 Upper Drum and Drum Motor

Note: When only the upper drum is to be replaced, follow the procedure of Items ①~④ of the removal method and ②~④ of the installation method.

(Removal)

① Remove the drum assembly. (Refer to Para. 2-10 for the removal method.)

② Unsolder the terminals of each head on the upper drum.

③ Remove the screws holding the upper drum shown in Fig. 2-11-1.

④ Remove the upper drum slowly and carefully.

⑤ Remove the screws(ⓐ and ⓑ) shown in Fig. 2-11-1 to remove the rotor case and damper. Remove the screws(ⓒ,ⓓ and ⓔ) to remove the drum motor.

(Installation)

Note: Handle the upper drum carefully as the video heads are fragile.

① Attach the rotary transformer and the drum motor so that the terminals of both face in the same direction, and secure them with the screws(ⓒ,ⓓ and ⓔ). Secure the rotor case with the screws(ⓐ and ⓑ).

② Position the white painted (shaded) area of the upper drum so that the area is –90° apart from the hole of the lower dram shaft. Insert the upper drum. Take care not to touch the head terminals. [Fig. 2-11-2]

③ Secure the upper drum with the two fastening screws. (Tighten the screws alternately.)

④ Solder the terminals of each head.

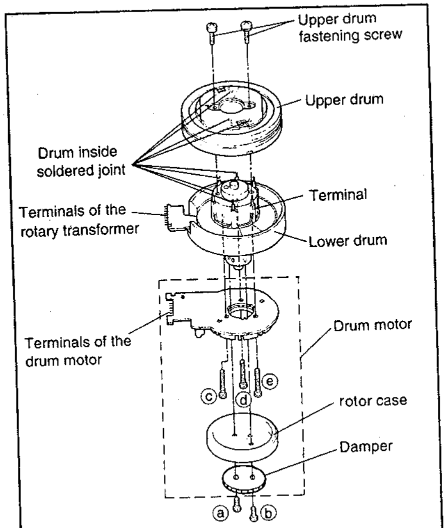

Upper drum fastening screw
Upper drum
Drum inside soldered joint
Terminal
Terminals of the rotary transformer
Lower drum
Drum motor
Terminals of the drum motor
ⓒ
ⓓ
ⓔ
rotor case
Damper
ⓐ
ⓑ

Fig. 2-11-1

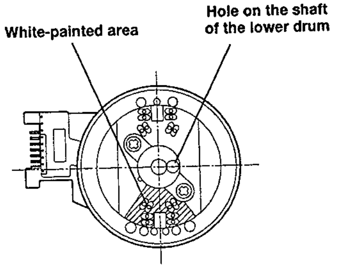

White-painted area
Hole on the shaft of the lower drum

Fig. 2-11-2

2-3 Door Arm

(Removal)

① Remove the cassette housing.
(Refer to Para. 2-1 for the removal method.)

② Remove the side plate, sens gear, and takeup arm.
(Refer to Para. 2-2 for the removal method.)

③ Unfasten the catch shown in Fig. 2-3-1 to remove the door arm. (Pull the door arm at the same time as unfastening the catch.)

(Installation)

① Fix the door arm to the shaft A shown in Fig. 2-3-1 and secure it with the catch so that the parts A and B are inside of the cassette housing, as shown in Fig. 2-3-2.

② Install the takeup arm, sens gear, and side plate.
(Refer to Para. 2-2 for the installation method.)

③ Install the cassette housing.
(Refer to Para. 2-1 for the installation method.)

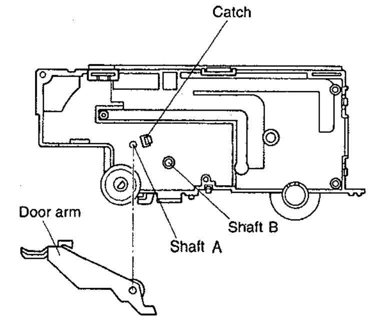


Fig. 2-3-1

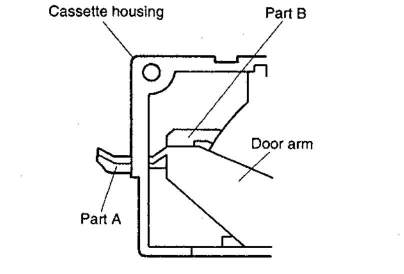


Fig. 2-3-2

2-4 Gear S and Gear T

(Removal)

① Follow the removal method in Items 1 to 5 of Para. 2-2.

② Unfasten the catch holding gear T from the inside of the cassette housing and remove the FL shaft to which the gear S and T are attached. (Refer to Fig. 2-4-2)

③ Pull out the gears S and T from the FL shaft.

(Installation)

① Fix the gear' S and T to the FL shaft.

② Install the FL shaft, first the end attached to gear T and then the end with gear S.

③ Follow the installation method in Item' 5 to 8 in Para. 2-2.

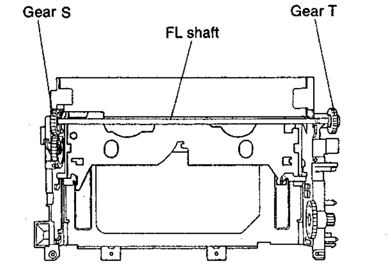


Fig. 2-4-1

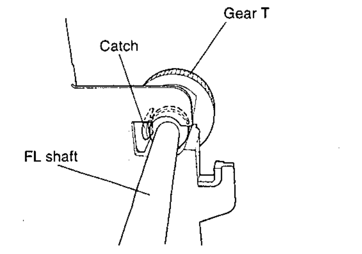


Fig. 2-4-2

2-5 Wheel Gear

(Removal)

① Remove the cassette housing.
(Refer to Para. 2-1 for the removal method.)

② Remove the side plate and sense gear.
(Refer to Para. 2-2 for the removal method.)

③ Unfasten the catch shown in Fig. 2-5-1 to remove the wheel gear.

(Installation)

① Install the wheel gear in the position shown in Fig. 2-5-1, from the inside of the cassette housing.

② Install the sens gear and side plate.
(Refer to Para. 2-2 for the installation method.)

③ Install the cassette housing.
(Refer to Para. 2-1 for the installation method.)

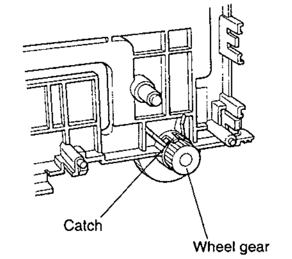


Fig. 2-5-1

2-6 Supply Arm and Arm Spring (SP)

(Removal)

① Remove the cassette housing.
(Refer to Para. 2-1 for the removal method.)

② Remove the side plate.
(Refer to Item 2 of Para. 2-2 for the removal method.)

③ Remove the sens gear.
(Refer to Item 3 of Para. 2-2 for the removal method.)

④ Pull the lock levers on both the supply and takeup side, shown in Fig. 2-6-1, in the direction shown by the arrow to shift the bottom plate to the position shown in Fig. 2-6-2.

⑤ Remove the takeup arm.
(Refer to Item 5 of Para. 2-2 for the removal method.)

⑥ Pull part A, fixed to the supply arm, in the direction shown by the arrow to remove the bottom plate.
(Refer to Fig. 2-6-3.)

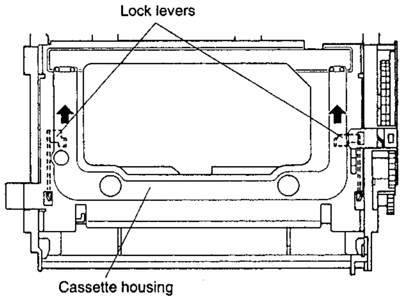


Fig. 2-6-1

urn the supply arm in the direction shown by the arrow shift part B, shown in Fig. 2-6-4, so that it aligns with e catch. Unfasten the catch to remove the supply arm. etach the arm spring from the supply arm as shown in ig. 2-6-5.

tallation)

Attach the arm spring to the supply arm as shown in Fig. 2-6-5.

Install the supply arm in the position shown in Fig. 2-6-4. (Align the catch with the part B of the supply arm.)

Insert the bottom plate so part A enters between the supply arm and the supply spring as shown in Fig. 2-6-3. Then install the bottom plate so that part C is in the position shown in Fig. 2-6-6.

) Follow the installation method in Item ⑤ to ⑧ in Para. 2-2.

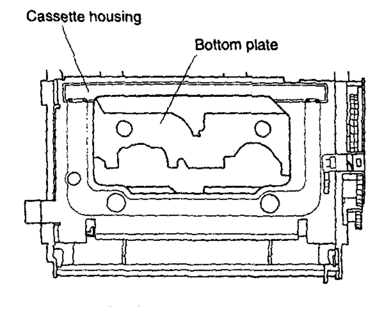

Cassette housing
Bottom plate

Fig. 2-6-2

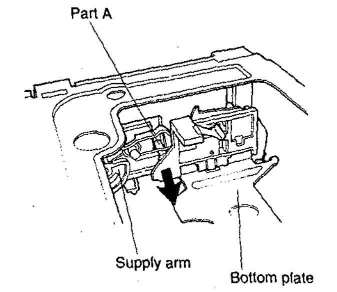

Part A
Supply arm
Bottom plate

Fig. 2-6-3

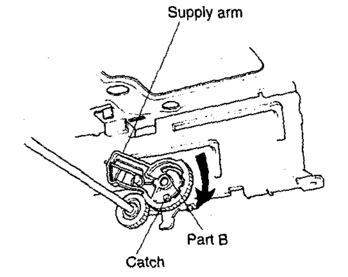

Supply arm
Part B
Catch

Fig. 2-6-4

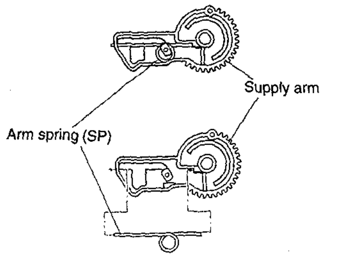

Supply arm
Arm spring (SP)

Fig. 2-6-5

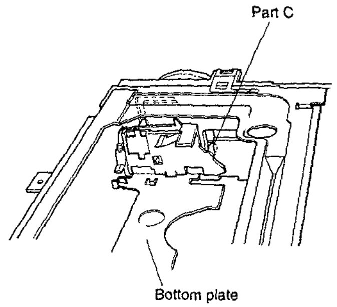

Part C
Bottom plate

Fig. 2-6-6

2. Replacement of Major Parts

2-1 Cassette Housing

(Removal)

① Set the VCR to the eject mode.

② Remove the top cover and the front panel.

③ Unfasten the clamp holding the lead of the loading motor, which is attached to the side plate of the cassette housing. Unscrew the two cassette housing fastening screws (ⓐ and ⓑ). Slowly raise the cassette housing in the direction shown by the arrow. (Refer to Fig. 2-1-1.)

(Installation)

① Make sure that the holes (matching mark M) on the body and cogwheel of the mode switch align with each other as shown in Fig. 2-1-2. At the same time confirm that the hole of the gear pinch aligns with the matching marks of the gear joint J and the ▽ mark on the mode switch cogwheel,refer to Fig. 2-19-5. This indicates the J deck is in the EJECT mode.

② If the deck is not completely set to the eject position, turn part A of the pulley worm J by hand to set the eject position. (Refer to Fig. 2-1-4)
Turn in the direction a ••••••for loading
Turn in the direction b ••••••for unloading

③ Slowly lower the cassette housing onto the main plate of the deck.

④ Make sure the record safety lever enters between the insert guide of the cassette housing and the shaft as shown in Fig. 2-1-3. Align the four points (ⓒ, ⓓ, ⓔ and ⓕ), located on the bottom of the housing with the matching holes in the deck. Secure the cassette housing on the deck with the two screws (ⓐ and ⓑ).
(Refer to Fig. 2-1-1.)

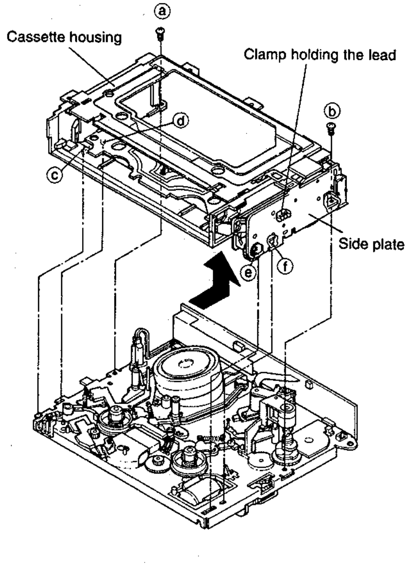

ⓐ
Cassette housing
Clamp holding the lead
ⓑ
ⓓ
ⓒ
Side plate
ⓔ
ⓕ

Fig. 2-1-1

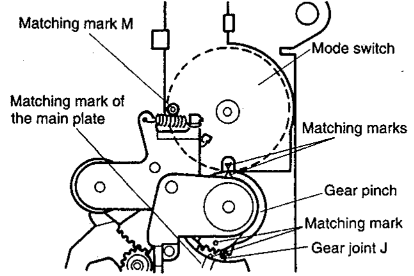

Matching mark M
Mode switch
Matching mark of the main plate
Matching marks
Gear pinch
Matching mark
Gear joint J

Fig. 2-1-2

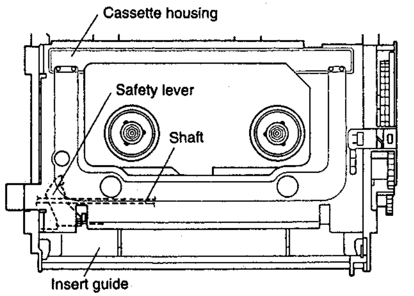

Cassette housing
Safety lever
Shaft
Insert guide

Fig. 2-1-3

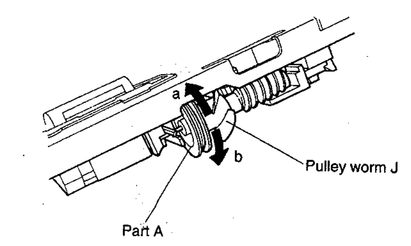

a
b
Pulley worm J
Part A

Fig. 2-1-4

2-2 Sens Gear, Drive Gear, Takeup Arm, and Arm Spring (TU)

(Removal)

① Remove the cassette housing.
(Refer to Para. 2-1 for the removal method.)

② Unfasten the four catches (ⓐ, ⓑ, ⓒ and ⓓ) as shown in Fig. 2-2-1 and remove the side plate.

③ Remove the sens gear.

④ Pull the lock levers on both the supply and takeup sides, shown in Fig. 2-6-1, in the direction shown by the arrow to shift the bottom plate to the position shown in Fig. 2-6-2.

⑤ Remove the takeup arm.

⑥ To remove the drive gear from the sens gear, turn and pull the drive gear in the direction shown by the arrow shown in Fig. 2-2-3.

⑦ Remove the arm spring (TU) from the takeup arm as shown in Fig. 2-2-4.

(Installation)

① Apply the grease (MULTEMP SH-M)[859D055060] to the area of the new takeup arm shown in Fig. 2-2-4.

② Apply the grease (MULTEMP SH-M)[859D055060] to the area shown in Fig. 2-2-5 of the new sens gear.

③ Apply the grease (MULTEMP SH-M)[859D055060] to the area shown in Fig. 2-2-6 of the new sens gear.

④ Place the clip spring on the drive gear hooking one end under the catch as shown in Fig. 2-2-5. Install the sens gear on the drive gear so that hole A aligns with hole B. Hold the sens gear while turning the drive gear clockwise, in so doing engage the other end of the clip spring with the catch of the sens gear. The projection A of the sens gear must enter the hole B of the drive gear.

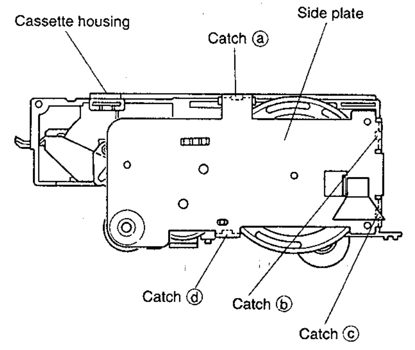

Cassette housing
Side plate
Catch ⓐ
Catch ⓓ
Catch ⓑ
Catch ⓒ

Fig. 2-2-1

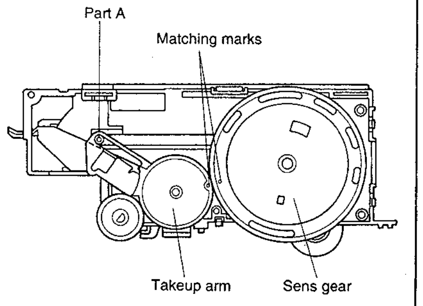

Part A
Matching marks
Takeup arm
Sens gear

Fig. 2-2-2

⑤ Insure the spring action is effective by holding the sens gear and turning the drive gear slightly clockwise, observing whether the drive gear returns when released.

⑥ Apply the grease (MULTEMP SH-M)[859D055060] to the area of the new takeup arm shown in Fig. 2-2-7.

⑦ Install the takeup arm so that the shaft from the bottom plate enters between the takeup arm and takeup spring, after the bottom plate is in the position shown in Fig. 2-6-2.

Note: Install the takeup arm so that the engaging point between the supply arm and gear-S, and that between the takeup arm and gear-T are symmetrical as shown in Fig. 2-4-1.

⑧ Shift the bottom plate back to the eject position and install the sens gear so that the matching marks of the sens gear and the takeup arm align as shown in Fig. 2-2-2.

⑨ Install the side plate.

⑩ Install the cassette housing.
(Refer to Para. 2-1 for the installation method.)

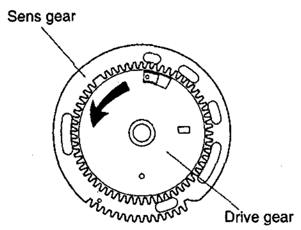

Sens gear
Drive gear

Fig. 2-2-3

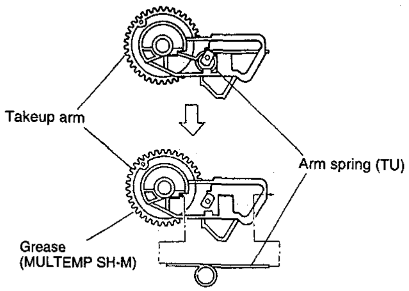

Takeup arm
Arm spring (TU)
Grease
(MULTEMP SH-M)

Fig. 2-2-4

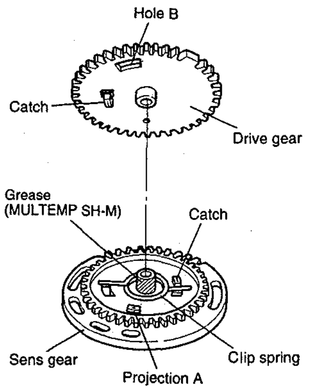

Hole B
Catch
Drive gear
Grease
(MULTEMP SH-M)
Catch
Sens gear
Clip spring
Projection A

Fig. 2-2-5

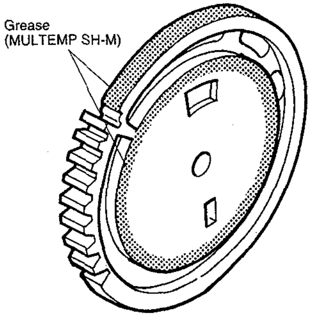

Grease
(MULTEMP SH-M)

Fig. 2-2-6

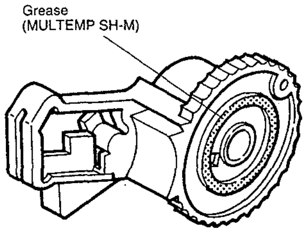

Grease
(MULTEMP SH-M)

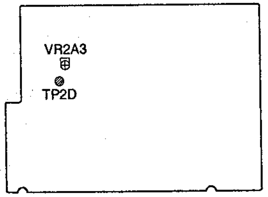
Fig. 2-2-7

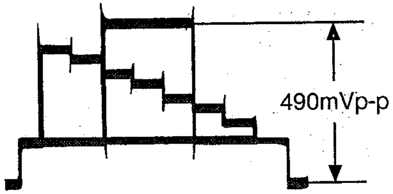
[Y/C signal circuit] 3.Clamp Input Level	**Adjustment purpose**	Set the level of video signal.
	Symptom when incorrectly adjusted	Blurred image, white streaking black streaking.

Measuring instrument and condition		VCR set up condition	
Oscilloscope		Input signal	RF signal (PAL colour bar)
Test point	TP2D	Using tape	—
EXT trigger	—	VCR condition	STOP
Measurement range	DIV 10mV TIM 10 μs	Using Jig	—

1. Supply an RF signal(PAL colour bar).
2. Observe the waveform at TP2D.
3. Adjust VR2A3 so that the amplitude of the waveform is 490mVp-p.

PCB-MAIN (Component side)



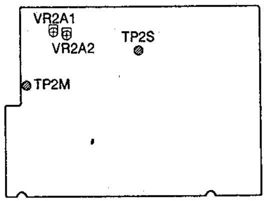


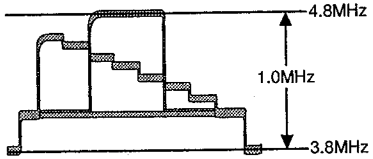
[Y/C signal circuit] 4.Carrier set, Deviation	**Adjustment purpose**	To set FM carrier frequency and deviation.
	Symptom when incorrectly adjusted	Too bright or too dark picture. Horizontal noise or out of sync.

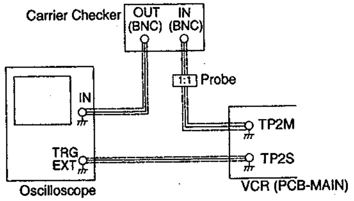
Measuring instrument and condition		VCR set up condition	
Oscilloscope(Probe 1:1)		Input signal	RF signal (PAL colour bar)
Test point	TP2M	Using tape	—
EXT trigger	TP2S	VCR condition	STOP
Measurement range	DIV 0.2V TIM 10 μs	Using Jig	Carrier checker

1. Supply an RF signal(PAL colour bar).
2. Observe the waveform at TP2M using the carrier checker.
3. Adjust VR2A2 so that the sync tip is at 3.8MHz.
4. Adjust VR2A1 so that the peak white is at 4.8MHz.

PCB-MAIN (Component side)





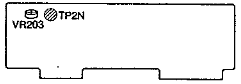


[Y/C signal circuit] 5.Y/C Recording Level	**Adjustment purpose**	Set the record level of the video and chroma signals.
	Symptom when incorrectly adjusted	Low luminance S/N, beats, colour bounding or flicker.

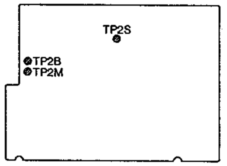
Measuring instrument and condition		VCR set up condition	
Oscilloscope(Probe 1:1)		Input signal	RF signal (PAL colour bar)
Test point	TP2N	Using tape	—
EXT trigger	TP2S	VCR condition	STOP
Measurement range	DIV 10mV TIM 10 μs	Using Jig	—

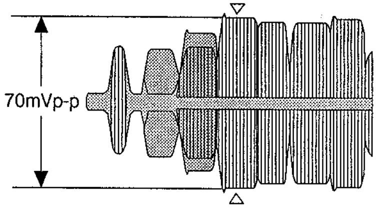
1. Supply an RF signal(PAL colour bar).
2. Observe the waveform at TP2N.
3. Short-circuit TP2M to TP2B(SW5V).
4. Adjust VR203 so that the amplitude of cyan is 70mVp-p.

PCB-HA/AUDIO (Component side)



PCB-MAIN (Component side)



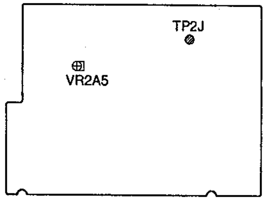


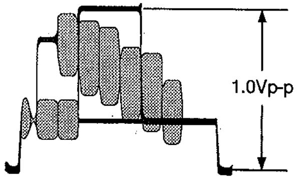
[Y/C signal circuit] 6.Playback Video Output Level	**Adjustment purpose**	Video output level during playback.
	Symptom when incorrectly adjusted	Incorrect contrast and colour.

Measuring instrument and condition		VCR set up condition	
Oscilloscope		Input signal	—
Test point	TP2J	Using tape	Alignment tape (PS2, colour bar)
EXT trigger	—	VCR condition	Playback
Measurement range	DIV 20mV TIM 10 μs	Using Jig	—

1. Playback an alignment tape (PS2, colour bar).
2. Be certain that nothing is connected to a VIDEO OUT terminal.
3. Observe the waveform at TP2J.
4. Adjust VR2A5 so that the amplitude of the waveform is 1.0Vp-p.

PCB-MAIN (Component side)





[Audio circuit] 7.Audio Bias Level	**Adjustment purpose**	Audio bias level during recording.
	Symptom when incorrectly adjusted	Poor audio response at high frequencies.

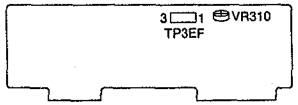
Measuring instrument and condition		VCR set up condition	
Audio tester		Input signal	—
Test point	TP3EF (pin ① and pin ③)	Using tape	A tape
EXT trigger	—	VCR condition	SP REC
Measurement range	—	Using Jig	High pass filter

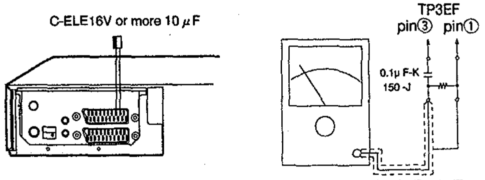
1. Supply no signal.
2. Short-circuit EURO AV socket pin ② (AUDIO IN) and pin ④ (GND) using an electrolytic capacitor (16V or more 10 μF).
3. Set the VCR to SP REC mode.
4. Observe the audio level at TP3EF (pin ① (GND) and pin ③) with an Audio Tester using a high pass filter.
5. Confirm that the monitor TV etc. does not affect the indication of the audio tester and then adjust VR310 so that the level is 2.6mVr.m.s.

Note 1:
Be careful that the audio tester housing does not touch the VCR chassis.

Note 2:
Never set the VCR to Play mode with the audio tester connected.
(The audio amplifier will be over loaded.)

PCB-HA/AUDIO (Component side)



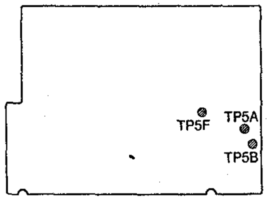


[Timer circuit] 8. Clock Frequency Correction	**Adjustment purpose**	To set the accuracy of clock.
	Symptom when incorrectly adjusted	Poor clock accuracy.

Measuring instrument and condition		VCR set up condition	
Frequency Counter		Input signal	—
Test point	TP5F	Using tape	—
EXT trigger	—	VCR condition	Power off
Measurement range	—	Using Jig	—

1. Set the VCR to the EJECT position. (with the tape ejected from the VCR)
2. Short-circuit TP5A to TP5B.
3. Observe the frequency at TP5F.
4. Be certain that the frequency is between 262.1000 ~ 262.1882kHz.
5. Use the number buttons on the remote hand unit to enter the last three digits of the frequency counter reading (262.1ⓐⓑⓒkHz). Enter the digits in ⓐⓑⓒ sequence.
6. Push the REC button on a remote hand unit.
7. Open circuit TP5A to TP5B.

PCB-MAIN (Component side)



MECHANICAL ADJUSTMENT AND REPLACEMENT

1.Cleaning of Deck

The following parts require cleaning whenever serviced to maintain satisfactory performance.

1-1 Video Head

A.Clean the video heads by the following method. Dust and other foreign objects on the video heads disturbs the normal playback picture:

Dampen a video head cleaning cloth with alcohol. Hold the cloth against the drum and turn the drum slowly counterclockwise to clean.

NOTE:

Do not directly touch the head attached to the upper drum. The head is very hard but brittle to impact, especially in the vertical direction.

Do not apply force in the vertical direction.

B.Allow residual alcohol to dry thoroughly before running a tape. Otherwise, the liquid may stick to and damage the tape.

1-2 Tape Transport (Refer to Fig. 1-1.)

Clean the following parts of the tape transport.

1.Tension arm
2.Supply guide pole
3.FE head
4.Supply slant pole
5.Upper and lower drum
6.Takeup slant pole
7.A/C head
8.Takeup guide pole
9.Capstan shaft
10.Takeup guide arm
11.Supply guide roller
12.Takeup guide roller
13.Pinch roller

A.Clean the tape transport using gauze dampened with alcohol,except the supply guide roller, takeup guide roller and pinch roller. If the Guide rollers and pinch roller are stained with dust,clean them with dry gauze or replace them with new parts.

B.Allow residual alcohol to dry thoroughly before running a tape. Otherwise the liquid may stick to and damage the tape.

1-3 Reel Disk Drive System

Clean the reel disk braking surfaces and the reel belt.

A. Clean the reel disk braking surfaces with gauze dampened with alcohol.
- After the alcohol dries completely, perform "Adjustment of Back Tension and Tension pole Position" (Item 3-1).

B. If the Reel belt is stained with dust, clean it with dry gauze or exchange it for a new part.

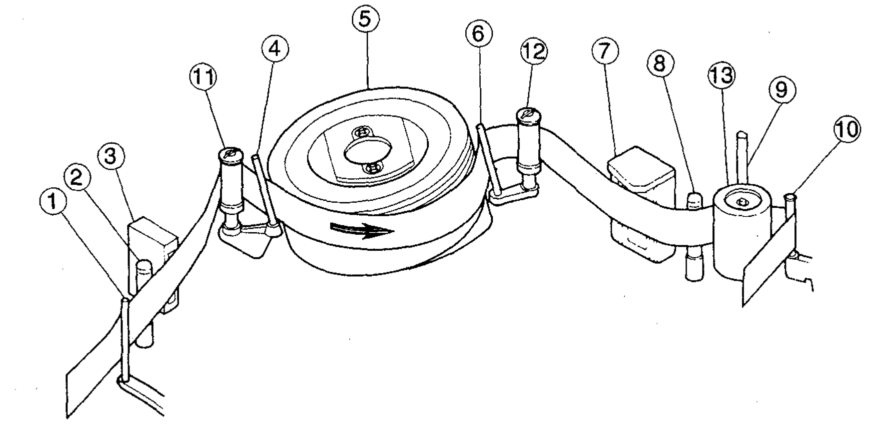
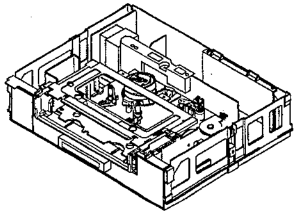
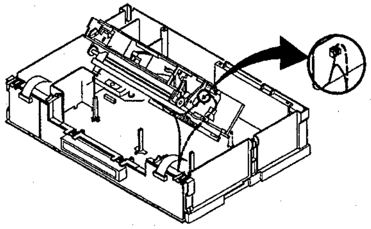
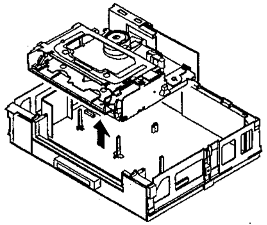
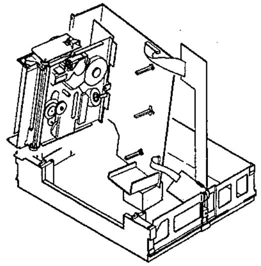


Fig. 1-1

When replacing parts or performing service adjustments, place the unit in the service positions shown below. Refer to page 9 for additional information about Service Positions.

Service Position	Service Item
(A) 	• Remove the top cover and the front panel. (1) Worn parts on the deck (upper drum, pinch roller assembly, A/C head, and FE head) can be replaced. (2) Checks at test points may be made to isolate a problem to a specific circuit.
(B) 	• Unfasten the clamper secaring ML lead wire on the desk. • Remove the screws holding the deck, raise the front of the deck upward, and hold it in place with a screw driver, etc. (1) Worn parts on the deck (reel belt, idler assembly, and capstan motor) can be replaced. (2) The performance of the deck can be checked. • The REC safety switch does not operate in position (B). • Set the deck to service position (A) and load the cassette tape. Then turn the power off and set the deck to service position (B). Cover the start and end sensors, and short-circuit test points TP2H to TP5J8. Turn the power on and play the tape. (Do not use the start or end portion of the tape.) • If it is necessary to eject the tape, turn the power off and set the deck to the service position (A). Turn the power on again and eject the tape.
(C) 	• Remove the screws holding the deck and disconnect the deck from the connector. (1) Parts on the deck (drum assembly, PCB-HA/AUDIO etc.) can be replaced. (2) The EE picture can be displayed with the deck removed by short-circuiting TP5X to TP5Y. (Short-circuit before turning the power on.) (Playback and recording operation can not be checked.)
(D) 	• Remove the PCB-TIMER/OPE. • Remove the deck with the PCB-MAIN attached. • Position insulating cushions as, shown in Figure D, supporting the supply side of the Cassette Housing, the Deck Base and the PCB-MAIN. **Note** Take care that the Deck, PCB-MAIN and inter connecting leads DO NOT touch the Power Transformer or the heat sink. (1) The foil side of the PCB-MAIN can be serviced in this position. ＊ If the bottom cover is removed, IC5A0 and IC4A0 are accessible for service.

Electrical Adjustments

Perform only the alignments required. If proper equipment is not available,do not attempt an alignment.

PRE-ADJUSTMENT SETTING

- Set the "COLOUR SYSTEM" to "PAL" mode in the MENU. (Only HS-521(Y)/ HS-521V(E), (G))
- Set the "TAPE OPTIMIZER" to "OFF" mode in the INITIAL SET-UP of MENU.
- Set the "TAPE OPTIMIZER" to "OFF" mode in the MENU. (Only HS-520V(B))
- Set the "RENTAL PB" to "OFF" position.

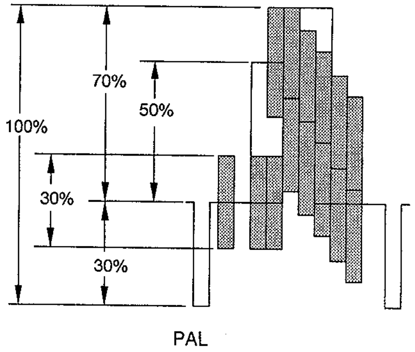
MEASURING EQUIPMENT AND JIGS

- Oscilloscope (10:1 unless 1:1 specified.)
- Frequency counter
- Audio tester
- Electrical tools

TEST SIGNAL

Colour bar signal

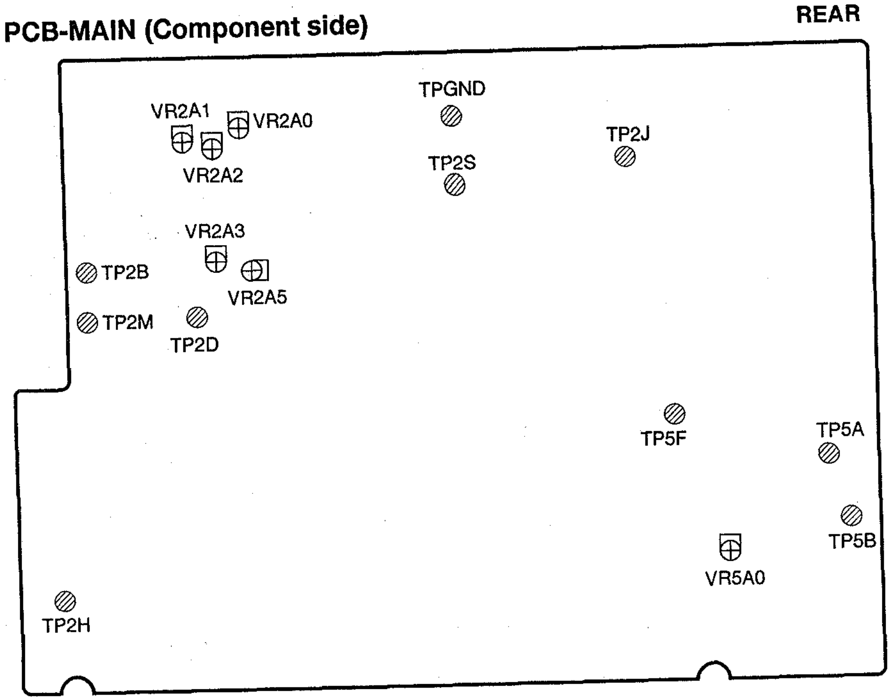
In this manual, unless otherwise specified in particular, use colour bar signal in specifications below.



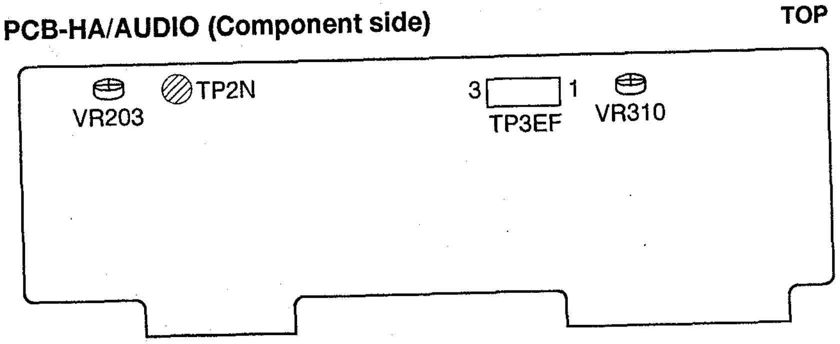
Split-Field colour bar(with 100% window)

LOCATIONS

PCB-MAIN (Component side)



PCB-HA/AUDIO (Component side)

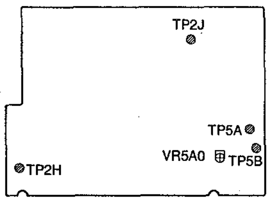


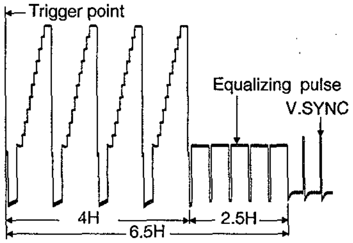
[Servo circuit] 1.Playback Switching Point	**Adjustment purpose**	Video switch over timing during playback.
	Symptom when incorrectly adjusted	Switching noise or jitter in the playback picture.

Measuring instrument and condition		VCR set up condition	
Oscilloscope		Input signal	—
Test point	TP2J	Using tape	Alignment tape (PS2, stair step)
EXT trigger	TP2H	VCR condition	Playback
Measurement range	DIV 20mV TIM 50 μs	Using Jig	—

1. Playback an alignment tape(PS2, stair step).
2. Short-circuit TP5A to TP5B. Confirm that the "DTR" displayed in Fluorescent Display flashes fast.
3. Observe the waveform at TP2J.
4. Set the oscilloscope's slope to (–).
5. Adjust VR5A0 so that the trigger point is located at 6.5±1.0H before the vertical synchronizing signal.

PCB-MAIN (Component side)



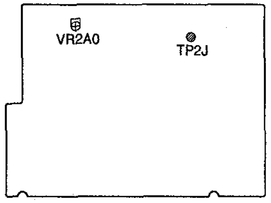


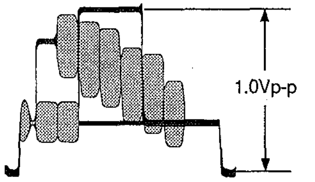
[Y/C signal circuit] 2.EE Output Level	**Adjustment purpose**	Set the output level of video signal in the STOP mode.
	Symptom when incorrectly adjusted	Picture too bright or too dark; incorrect colour.

Measuring instrument and condition		VCR set up condition	
Oscilloscope		Input signal	RF signal (PAL colour bar)
Test point	TP2J	Using tape	—
EXT trigger	—	VCR condition	STOP
Measurement range	DIV 20mV TIM 10 μs	Using Jig	—

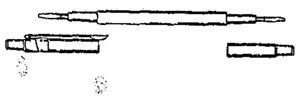
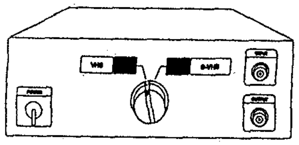
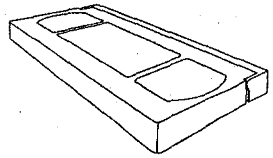
1. Supply an RF signal (PAL colour bar).
2. Be certain that nothing is connected to a VIDEO OUT terminal.
3. Observe the waveform at TP2J.
4. Adjust VR2A0 so that the amplitude of the waveform is 1.0Vp-p.

PCB-MAIN (Component side)





ELECTRICAL ADJUSTMENT TOOLS

	PURPOSE	METHOD
Adjustment Driver (859C338000) 767-M 	The adjustment driver is intended to adjust variable resistors, trimmers, transformers etc.in the circuitry.	Select a tip suitable for the particular head of the component concerned and adjust.
Carrier Checker (859C346050) 	Used for the adjustment or inspection of the carrier set deviation.	Use in conjunction with the oscilloscope. For detail refer to the service manual.
Alignment Tape (PS-2 :859C339010) (PM6KH3 :859C339030) (PM3KE6(CH1) 25 :859C568050) (PMX :859C568070) 	Standard signals(VHS Standard) are recorded on the alignment tape and reproduced when required in the adjustment of Y/C circuit, audio circuit and interchangeability alignment.	Install and run in the play mode, the same as for an ordinary tape.

HOW TO INITIALIZE THE E^2PROM

The E^2PROM is not initialized before shipping, so the E^2PROM must be initialized when replaced.

Initialize the E^2PROM by following the steps below.

1. Set the VCR to "Set the clock" mode.
2. Push **COUNTER RESET** button on the remote hand unit for 8 seconds.

VCR OPERATION IN SERVICE POSITIONS [B] AND [C]

Refer to page 10 for Service Position Information.

■ To activate PB, REC, FF or REW Mode (Service position [B] only)

- Cover the Start and End Sensors with an Infra-red opaque material e.g. black vinyl tape etc..
- The reel sensor must provide input "rotating" signals to the microprocessor. To provide a dummy reel rotating signal, connect TP2H to TP5J8 on PCB-MAIN.

CAUTION:

Because the Start and End sensors are disabled there will be a risk of END of TAPE damage in REW and FF Modes.

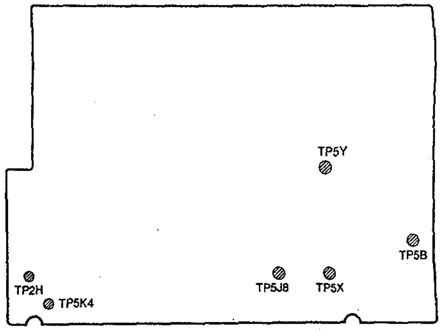
■ Ejecting a tape

When TAPE EJECT is necessary, disconnect the main supply and reinstall the DECK ASSY to the Service Position [A], restore power then EJECT the tape.

■ Record Protection Method

- To protect TEST TAPE(s) from accidental Recording (erasure) during testing, connect TP5B (STBY 5V) to TP5K4 on PCB-MAIN .

PCB-MAIN(Component side)



5. PCB-HA/AUDIO

① Remove the Top Cover.
(Refer to Para. 1 of the DISASSEMBLY.)

② Remove the barrier.
(Refer to Para. 3 of the DISASSEMBLY.)
Servicing on the copper side is possible.

③ If necessary, remove the Assy Deck.
(Refer to Para. 5 of the DISASSEMBLY.)
Raise the Shield-PLATE-HA upward to remove it. Disconnect three terminals (ⓐ,ⓑ and ⓒ), remove three fastening screws (ⓓ,ⓔ and ⓕ) shown in Fig. 13. Disconnect the connectors of Head FE, A/C Head, and Motor CP then remove the PCB-HA/AUDIO.

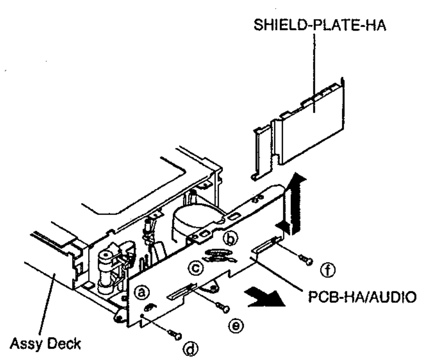


Fig.13

6. PCB-POWER SUB

① Remove the Top Cover.
(Refer to Para. 1 of the DISASSEMBLY.)

② Remove the barrier.
(Refer to Para. 3 of the DISASSEMBLY.)

③ Remove the holder of AC power cord from the Base Chassis shown in Fig. 14.

④ Disconnect connectors BB (for the Power receptacle) and MD on the PCB-POWER SUB.

⑤ Remove one fastening screw (ⓐ) on the bottom, shown in Fig. 14, and two screws (ⓑ and ⓒ : 669D221040). Hold the transformer, and raise the PCB-POWER SUB to remove it.

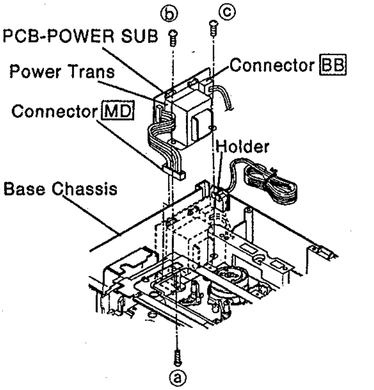
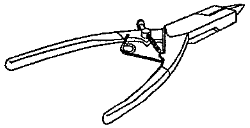
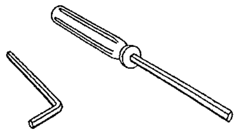
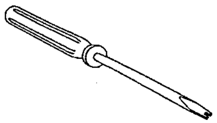
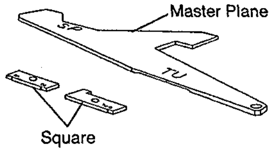
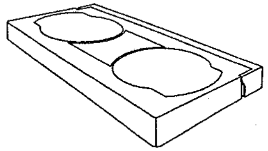


Fig.14

MECHANICAL ADJUSTMENT TOOLS

	PURPOSE	METHOD
Grip ring fixer **(859C347050)** 	A tool for preventing the grip ring from opening excessively.	Opening the grip ring with the tips of this tool, install the grip ring on to the shaft.
Hex Keys(1.5mm)  **(859C259020)** **(859C259050)**	The hex keys are used for tightening or removing hexagonal socket head screws which fasten the guide rollers.	Insert the given size(1.5mm) hexagonal socket and turn.
Adjustment Driver **(859C259080)** 	For adjustment of guide rollers.	Carefully insert and adjust guide rollers.
Height adjusting Jig **•Master Plane** **(859C342020)** **•Square** **(859C341070)** 	The master plane and the square are used for measuring height and perpendicularity of the reel disk and Takeup guide arm.	*The gauge is applied to the part being measured.*
Back Tension Gauge **(859C345080)** 	The back tension gauge is used for measuring the tension of the tape on the supply side.	Load this gauge in the cassette housing and run in the play mode. Read the gauge indicator.
Cotton gloves	For changing, cleaning and handling of drum, heads and guides.	Use when handling all parts in the tape path.
Grease **PG641** **(859D055030)** **G** **(859D055050)** **MULTEMP SH-M** **(859D055060)**	Lubrication of various parts.	*To be applied as specified.*

1. PCB-MAIN

① Remove the Top Cover.
(Refer to Para. 1 of the DISASSEMBLY.)

② Remove the barrier.
(Refer to Para. 3 of the DISASSEMBLY.)
Servicing on the components side is partially possible.

③ Remove the Front Panel.
(Refer to Para. 2 of the DISASSEMBLY.)
Remove eight fastening screws referred to as ③ and ④ in Para. 5 of the DISASSEMBLY. (Do not disconnect the connector **ML**.)

④ Raise the front side of the Assy Deck upward as shown in Fig. 7 and support it with a screw driver, etc. Servicing on the components side of the PCB is now possible.

⑤ If necessary to remove PCB-MAIN completely, remove the Assy Deck. (Refer to Para. 5 of the DISASSEMBLY.) Remove all connectors on the PCB-MAIN. Remove one fastening screw (ⓐ) on the bottom and two fastening screws (ⓑ and ⓒ) on the Antenna Terminal Board shown in Fig. 8. Raise the PCB-MAIN upward to remove it.

⑥ To service the component side, remove three screws (ⓐ, ⓑ and ⓒ: 669D222090) retaining the Heat Sink shown in Fig. 9.

CAUTION:
Power regulators are damaged if the power supply is turned on without the Heat Sink installed.

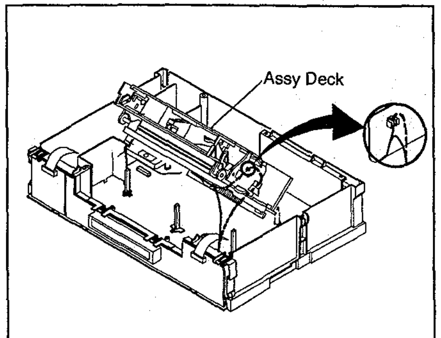


Fig. 7

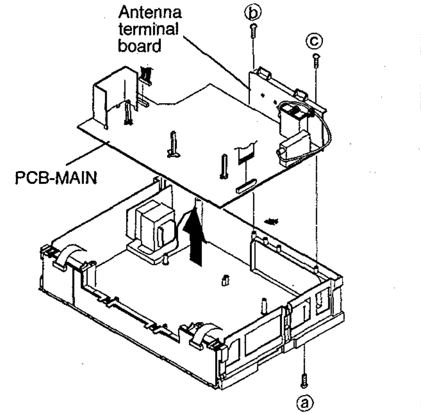


Fig. 8

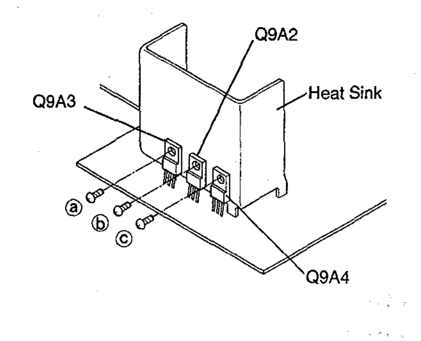


Fig. 9

2. PCB-CONNECTOR(HS-521 only)

① Remove the Top Cover.
(Refer to Para. 1 of the DISASSEMBLY.)

② Remove the barrier.
(Refer to Para. 2 of the DISASSEMBLY.)
(Servicing for the solder side of PCB-CONNECTOR is available.)

③ If it is necessary to remove the PCB-CONNECTOR, comply with the following steps.
(1) Remove the PCB-MAIN.
(Refer to the preceding paragraph.)
(2) Remove four screws (ⓐ,ⓑ,ⓒ and ⓓ), unfasten five catches (ⓔ~ⓘ) on the Antenna Terminal Board as shown in Fig.10, and remove the Antenna Terminal Board.
(3) Raise the PCB-CONNECTOR-G upward to remove it.

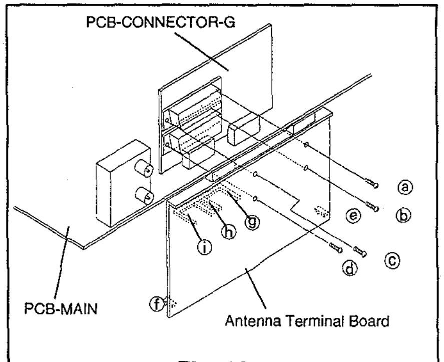


Fig. 10

3. PCB-TIMER(HS-521 only)

① Remove the Top Cover.
(Refer to Para. 1 of the DISASSEMBLY.)

② Remove the Front Panel.
(Refer to Para. 2 of the DISASSEMBLY.)

③ Remove five catches (ⓐ~ⓔ), shown in Fig. 11, then remove the PCB-TIMER.

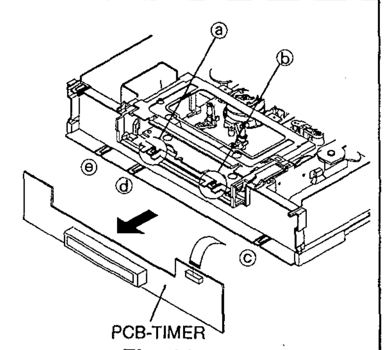


Fig. 11

4. PCB-TIMER/OPE(HS-520 only)

① Remove the Top Cover.
(Refer to Para. 1 of the DISASSEMBLY.)

② Remove the Front Panel.
(Refer to Para. 2 of the DISASSEMBLY.)

③ Remove six catches (ⓐ~ⓕ) shown in Fig. 12 to remove the PCB-TIMER/OPE.

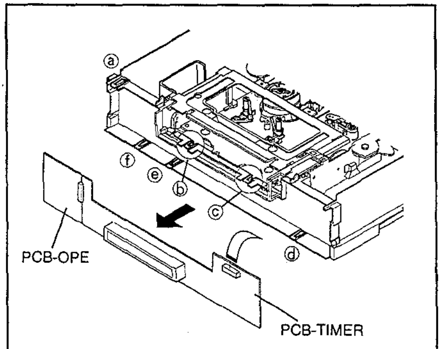


Fig. 12

4. Removal of Bottom Panel

① Remove five fastening screws (ⓐ~ⓔ) shown in Fig. 3.

② Push the two inside hooks (ⓕ and ⓖ), holding the Bottom Panel and slide the Bottom Panel toward the rear to remove it.

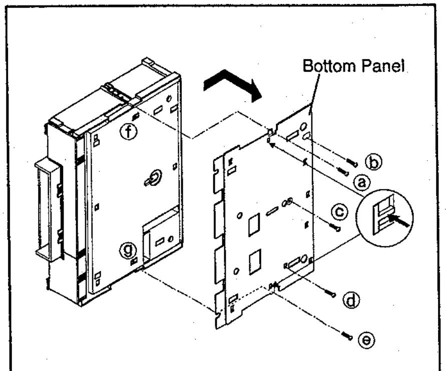

Bottom Panel
ⓕ
ⓖ
ⓑ
ⓐ
ⓒ
ⓓ
ⓔ

Fig. 3

5. Removal of Assy Deck

① Remove the Top Cover.
(Refer to Para. 1 of the DISASSEMBLY.)

② Remove the barrier.
(Refer to Para. 3 of the DISASSEMBLY.)

③ Remove the three fastening screws (ⓐ,ⓑ and ⓒ) on the bottom of the set shown in Fig. 4.

④ Remove the five screws (ⓓ~ⓗ) holding the Assy Deck, shown in Fig. 5, and disconnect the connectors ML, MM and ME.

⑤ Slowly raise slowly the Assy Deck upward to remove it.

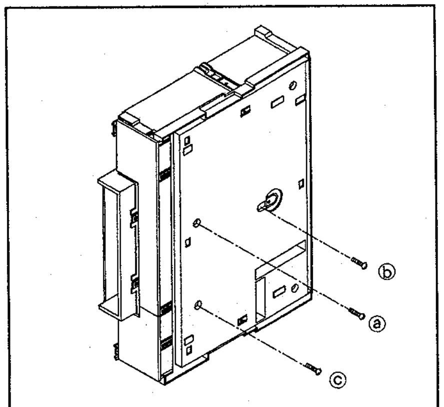


Fig. 4

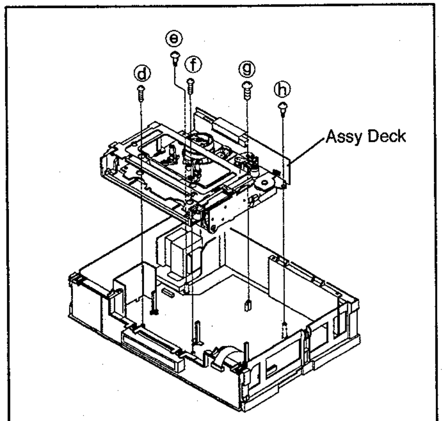


Fig. 5

HOW TO EXECUTE CIRCUIT BOARD SERVICE

CAUTION:

BEFORE ATTEMPTING TO REMOVE OR REPAIR ANY PCB, UNPLUG THE POWER CORD FROM THE A.C. SOURCE.

LOCATION OF PRINT CIRCUIT BOARDS

Note:

- Take caution when removing flat cables to prevent any contact problem.
- Connect and disconnect the flat cables at right angles to the connector and make sure that it is completely secured.
- After servicing the PCB, restore the flat cable and leads to their former state.

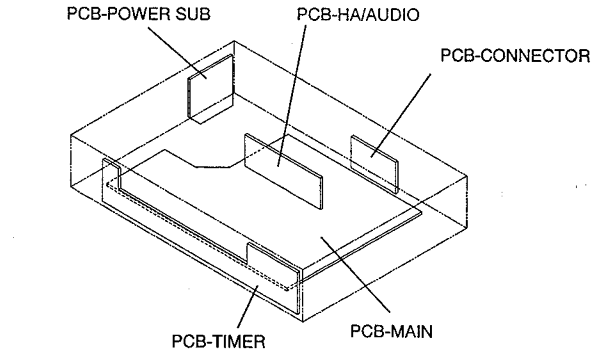

PCB-POWER SUB
PCB-HA/AUDIO
PCB-CONNECTOR
PCB-TIMER
PCB-MAIN

Fig. 6A
[HS-521]

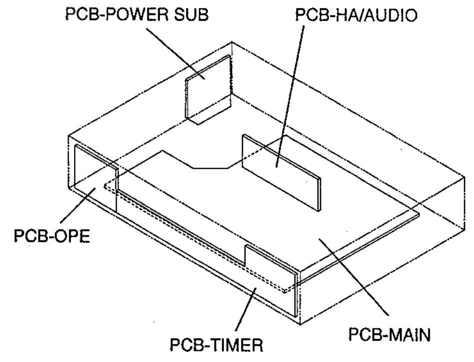
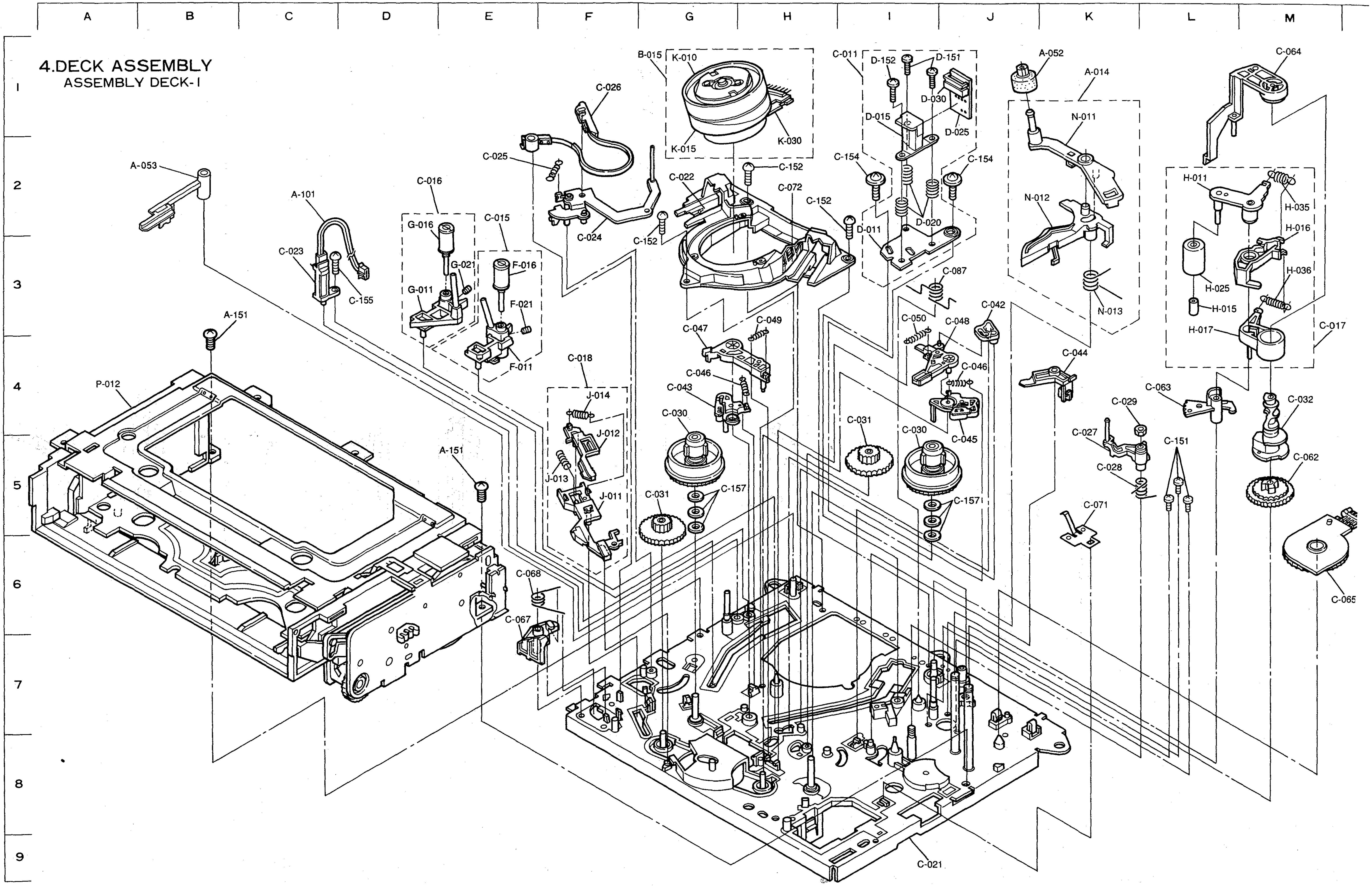

PCB-POWER SUB
PCB-HA/AUDIO
PCB-OPE
PCB-TIMER
PCB-MAIN

Fig. 6B
[HS-520]

4.DECK ASSEMBLY

ASSEMBLY DECK-1



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G-011
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F-011
C-025
C-026
C-024
C-152
C-018
J-014
J-012
J-013
J-011
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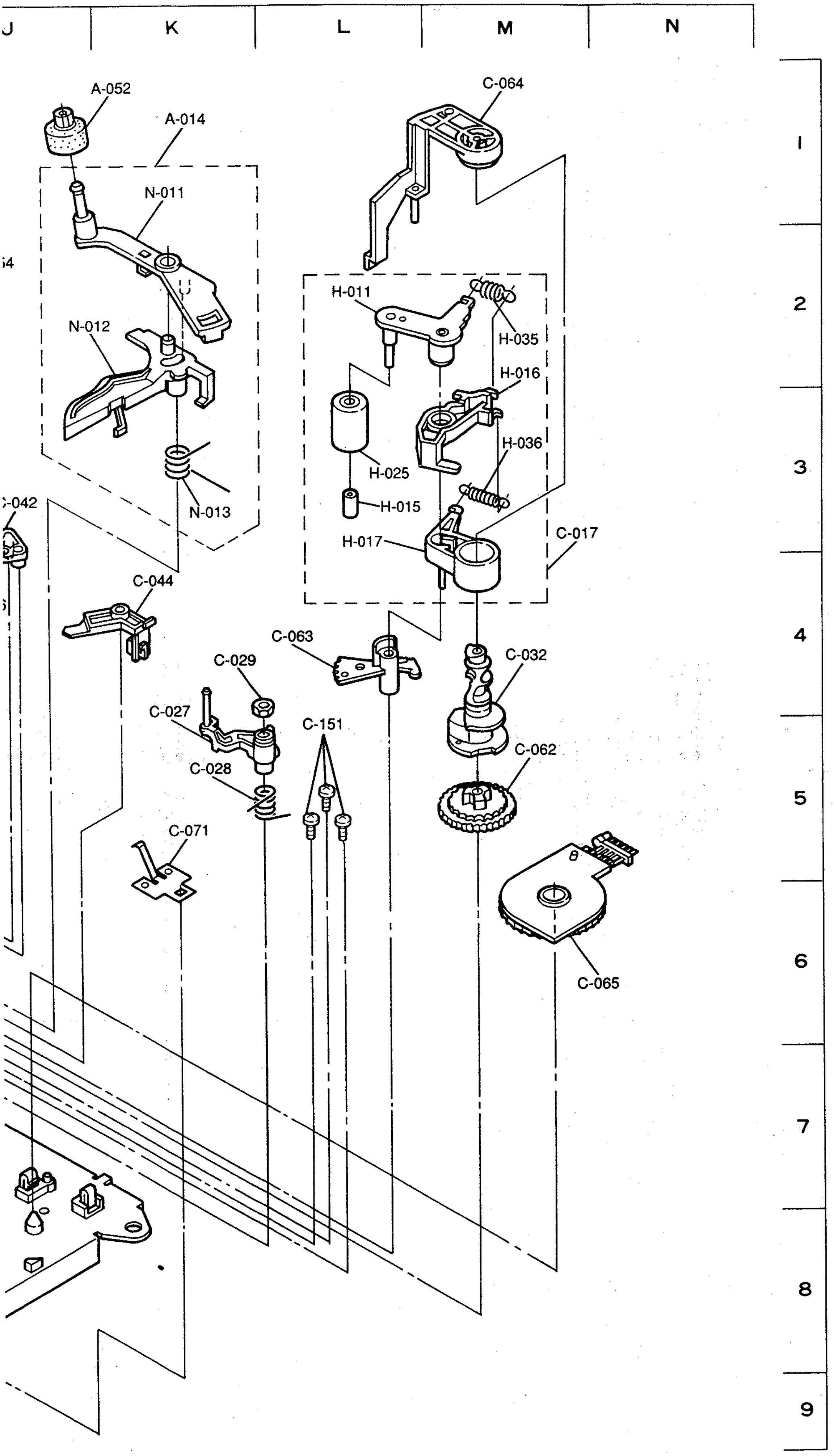
C-021



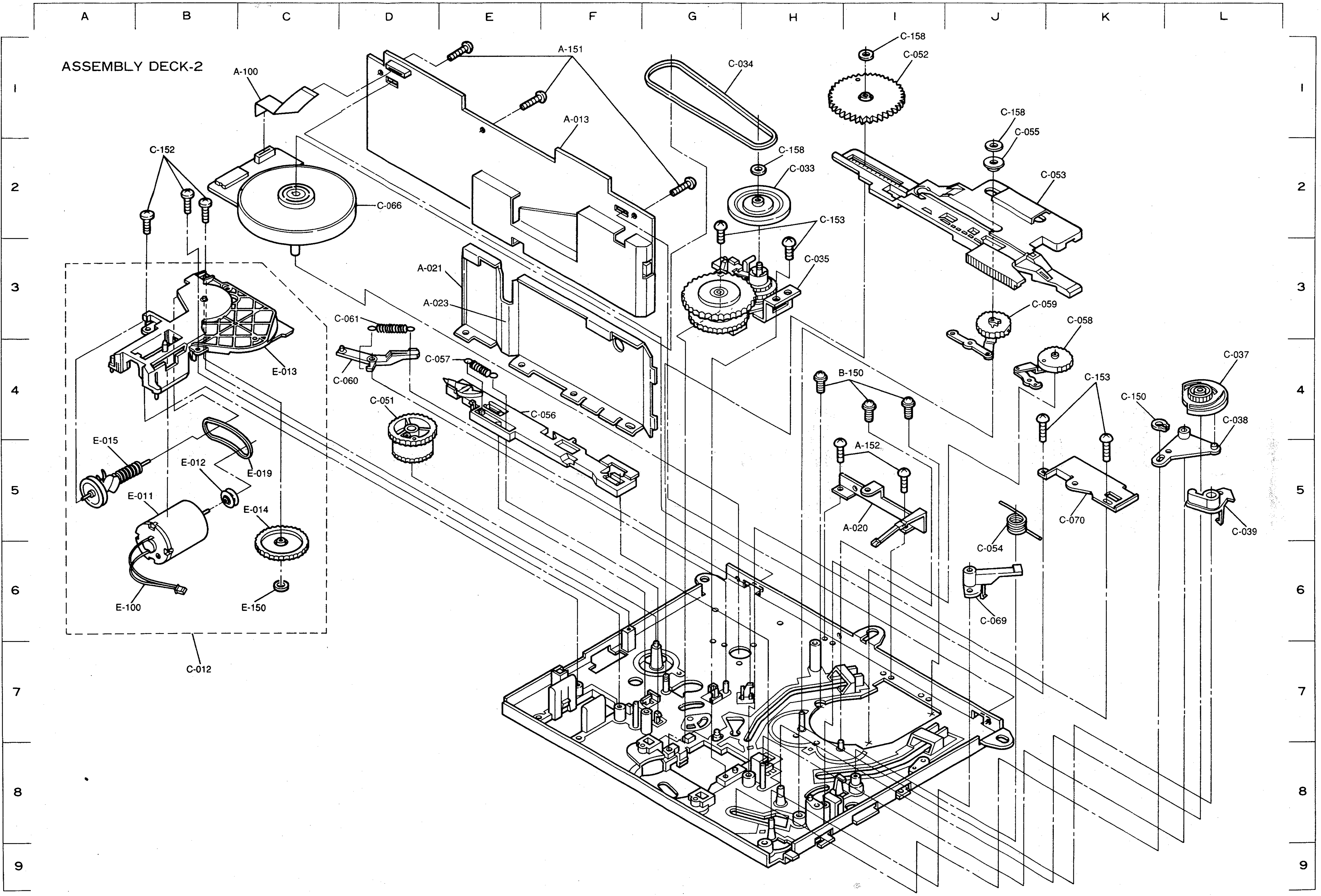
* Settelled Service Parts

ITEM	PARTS No.	*	ADDRESS		PARTS NAME	DESCRIPTION	Qt.
A-012	948A155006	○	A-4		ASSY-F/L-J		01
A-014	948B349001		K-2		ASSY-CLE	[B, IR]	01
N-011	641B680010	○	K-2		ARM-CLE	[B, IR]	01
N-012	641B681010	○	K-3		LEVER-CLE	[B, IR]	01
N-013	572D703010	○	K-3		SPRING-CLE	[B, IR]	01
B-015	948B356003	○	G-2		ASSY-DRUM	[B, IR]	01
B-015	948B356004	○	G-2		ASSY-DRUM	[E, G, Y]	01
K-010	927B802019	○	G-1		ASSY-UPPR-DRUM	[B, IR]	01
K-010	927B802018	○	G-1		ASSY-UPPR-DRUM	[E, G, Y]	01
K-015	927B803002		G-2		ASSY-LOWER-DRUM		01
K-030	288P088060	○	H-2		MOTOR-DRUM	M570	01
C-011	928D104002	○	I-1		ASSY-A/C-HEAD		01
D-011	593C399010		I-2		PLATE-A/C		01
D-015	460P060060	○	I-1		HEAD	T370	01
D-020	572D639010		I-2		SPRING-A/C		03
D-025	215C730010		J-1		PWB-A/C-JA		01
D-030	452C140060		J-1		CONNECTOR-PC2M(S)		01
D-151	669D483010		I-1		SCREW	M2. 6X8	02
D-152	669D485010		I-1		SCREW	2. 6X8	01
C-015	948D042001	○	E-3		ASSY-TAPE-GUIDE-T		01
C-015	948D042002	○	E-3		ASSY-TAPE-GUIDE-T		01
C-015	948D042003	○	E-3		ASSY-TAPE-GUIDE-T		01
F-011	635B085010	○	E-4		TAPE-GUIDE-T		01
F-011	635B085020	○	E-4		TAPE-GUIDE-T		01
F-011	635B085030	○	E-4		TAPE-GUIDE-T		01
F-016	522D177010	○	E-3		GUIDE-ROLLER		01
F-021	669D197020		E-4		SET-SCREW-F	D=M3X0. 5 L=4	01
C-016	948D043001	○	D-3		ASSY-TAPE-GUIDE-S		01
C-016	948D043002	○	D-3		ASSY-TAPE-GUIDE-S		01
C-016	948D043003	○	D-3		ASSY-TAPE-GUIDE-S		01
G-011	635B086010	○	D-3		TAPE-GUIDE-S		01
G-011	635B086020	○	D-3		TAPE-GUIDE-S		01
G-011	635B086030	○	D-3		TAPE-GUIDE-S		01
G-016	522D177010	○	D-3		GUIDE-ROLLER		01
G-021	669D197020		E-3		SET-SCREW-F	D=M3X0. 5 L=4	01
C-017	948D044001	○	M-3		ASSY-ARM-PINCH		01
H-011	593C465010		L-2		ARM-PINCH		01
H-015	622D235010	○	L-3		CAP-ROLLER		01
H-016	621C243010		M-3		LEVER-PINCH		01
H-017	621C241010		M-3		SLIDER-PINCH		01
H-025	522D174010	○	L-3		ROLLER-PINCH		01
H-035	572D314010	○	M-2		SPRING-PINCH		01
H-036	572D714010	○	M-3		SPRING-CAM-PINCH		01
C-018	948C315001		F-4		ASSY-CHARGE		01
J-011	641B629010	○	F-6		LEVER-SWING-ID		01
J-012	621C238010	○	F-5		LEVER-REV		01
J-013	572D684010		F-5		SPRING-CHARGE		01
J-014	572D624010	○	F-5		SPRING-REV		01
C-021	948A159001		I-9		ASSY-MAIN-PLATE		01
C-022	635A038030		G-2		DRUM-BASE		01
C-023	460P153010	○	C-3		HEAD-FE	T371	01

* Settelled Service Parts

ITEM	PARTS No.	*	ADDRESS		PARTS NAME	DESCRIPTION	Qt.
C-024	592B049010	○	F-3		ARM-TENSION		01
C-025	572D627010	○	F-2		SPRING-TENS		01
C-026	641B624020	○	F-2		BELT-TENS-BRAKE		01
C-027	635B084010	○	K-5		ARM-TU-G		01
C-028	572D647010	○	K-5		SPRING-TU-G		01
C-029	674D081020	○	K-5		NUT-NYLON	M3X0. 5	01
C-030	522C092010	○	I-5	G-5	UNIT-REEL-DISK		02
C-031	621C234010	○	I-5	G-6	GEAR-R		02
C-032	641B630010	○	M-4		CAM-PINCH-J		01
C-042	621C315010	○	J-4		LEVER-SUB-OFF		01
C-043	641B635020	○	G-4		BRAKE-MAIN-S		01
C-044	622D219010	○	K-4		LEVER-RELEASE-M/B		01
C-045	641B634020	○	J-4		BRAKE-MAIN-T		01
C-046	572D635010	○	H-4	J-4	SPRING-M/B-J		02
C-047	641B633010	○	G-4		BRAKE-SUB-S		01
C-048	641B632020	○	I-4		BRAKE-SUB-T		01
C-049	572D623010	○	H-4		SPRING-SUB-S		01
C-050	572D625010		I-4		SPRING-SUB-T		01
C-062	621C240010	○	M-5		GEAR-PINCH		01
C-063	635C098010	○	L-4		GEAR-TU-G		01
C-064	641B628010	○	M-1		CAP-CAM-PINCH		01
C-065	439P039010	○	N-6		SW-MODE-J	S570	01
C-067	641B641010	○	E-7		LEVER-RIS		01
C-068	572D646010	○	E-6		SPRING-RIS		01
C-071	597D102010		K-5		PLATE-EB		01
C-072	572D712010	○	H-3		SPRING-DB		01
C-087	572D697010		I-3		SPRING-AC-EARTH		01
C-151	669D285040		L-5		SCREW-TB-PAN	M2. 6X8	03
C-152	669D224020		G-3 I-3	H-2	SCREW-TB	2. 6X8	03
C-154	669D476020	○	I-2	J-2	SCREW-TB-SEMS	2. 6X8	02
C-155	669D224030		D-3		SCREW-TB	2. 6X10	01
C-157	552C017030	○	G-5	J-5	WASHER-THRUST	2. 5X6X0. 13	06
A-052	621C033010	○	J-1		UNIT-CLE-ROLLER	[B, IR]	01
A-053	621C344010	○			LEVER-TG		01
A-101	248B173040		C-3		LEAD-CONNECTOR-S		01
A-120	641C685010		E-7		CLAMPER-LEAD-F/L		01
A-151	669D224020		B-4	E-5	SCREW-TB	2. 6X8	02

ASSEMBLY DECK-2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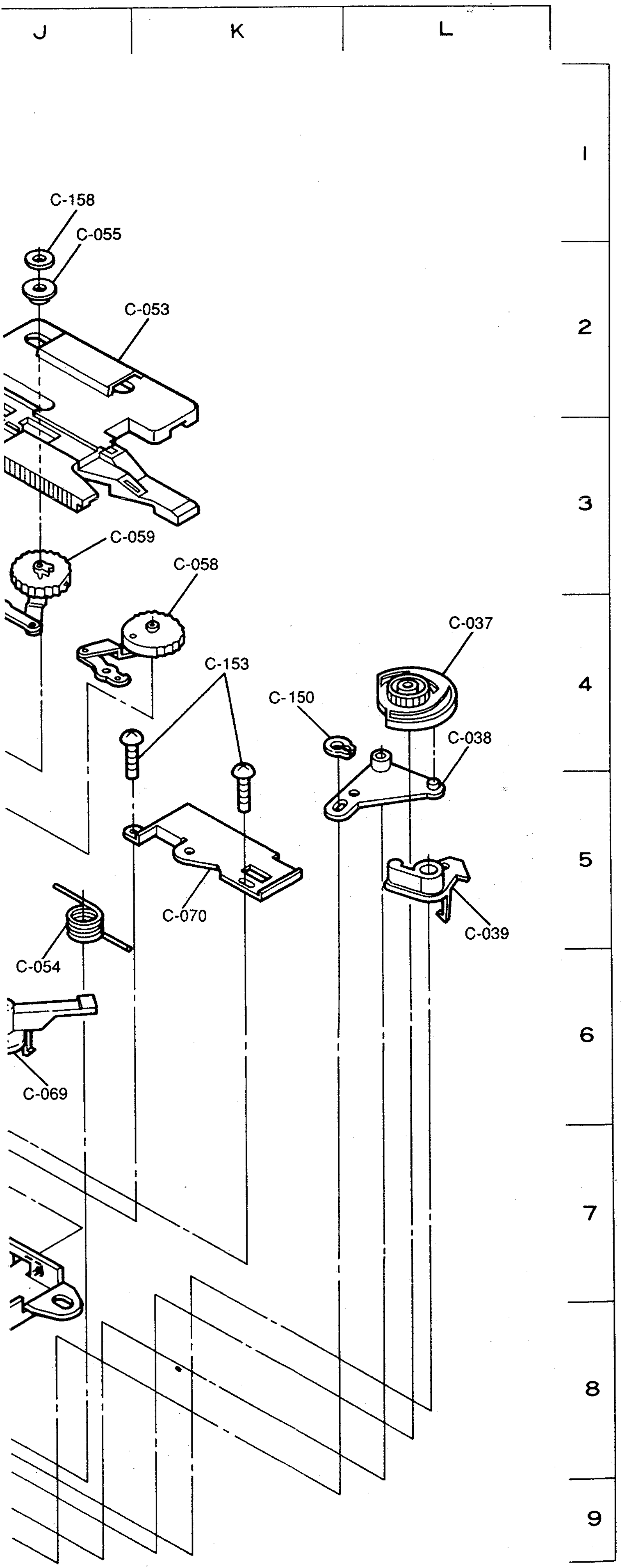
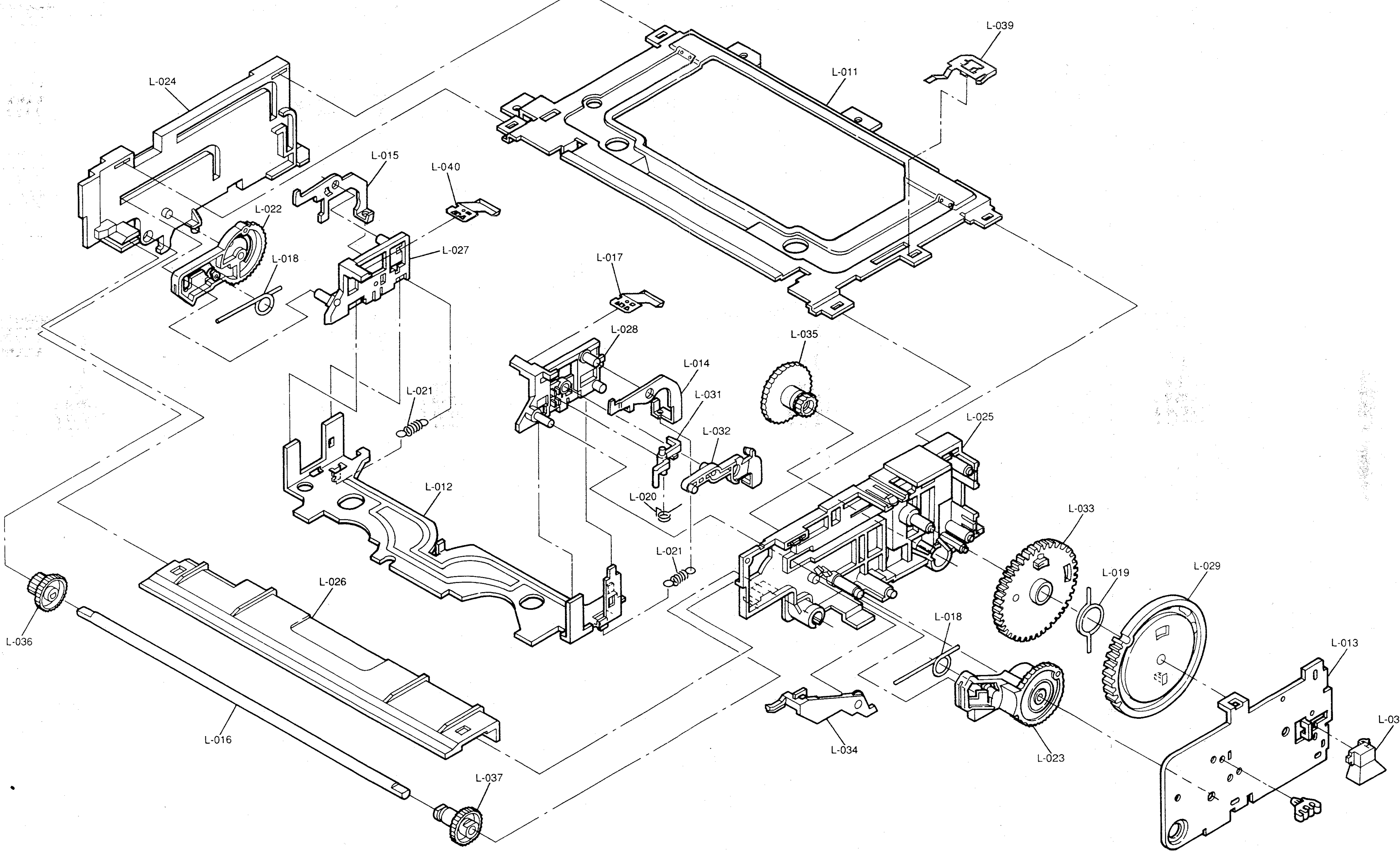


* Settelled Service Parts

ITEM	PARTS No.	*	ADDRESS		PARTS NAME	DESCRIPTION	Qt.
A-013	927D875001	○	F-2		ASSY-PWB-HA/AUDIO	[B, IR]	01
A-013	927D875002	○	F-2		ASSY-PWB-HA/AUDIO	[E, G, Y]	01
C-012	928D105002		B-7		ASSY-L-MOTOR		01
E-011	288D145010	○	B-5		MOTOR-LOADING		01
E-012	622D220020		B-5		PULLEY-MOTOR		01
E-013	641B727010		C-4		HOLDER-MOTOR-J		01
E-014	621C258010	○	C-6		GEAR-A		01
E-015	621C259010	○	A-5		PULLEY-WORM-J		01
E-019	521D088010	○	C-5		BELT-LM2		01
E-100	248B173020		B-6		LEAD-CONNECTOR-S		01
E-150	552C018020	○	C-6		CUT-WASHER	2.5X4.7X0.5	01
A-020	299C030010	○	I-5		BRUSH		01
A-021	292B204010		D-3		SHIELD-PLATE-HAK		01
A-023	223D533010		D-3		BARRIER-HA		01
A-100	243C125010	○	C-1		LEAD-CARD		01
A-151	669D224020		E-1 G-2	E-2	SCREW-TB	2.6X8	03
A-152	669D224010		I-5		SCREW-TB	2.6X6	02
B-150	669D200020		I-4		SCREW-SEMS	M2.6X0.45-6	03
C-033	621C254010	○	H-2		PULLEY-BELT		01
C-034	521D081010	○	G-1		BELT-REEL-J		01
C-035	522B057030	○	H-3		UNIT-REEL-IDLER		01
C-037	621C235010	○	L-4		CAM-GEAR-R		01
C-038	622D229010	○	L-5		LEVER-CHARGE		01
C-039	622D223010	○	L-5		LEVER-T-OFF		01
C-051	621C257010	○	D-5		GEAR-JOINT-J		01
C-052	641B637010	○	I-1		MAIN-GEAR-J		01
C-053	641A311010	○	J-2		PLATE-CAM-B		01
C-054	572D640010		J-5		SPRING-CAM-B		01
C-055	622D224010	○	J-2		ROLLER-B		01
C-056	641B636010	○	E-4		PLATE-CAM-C		01
C-057	572D636010	○	E-4		SPRING-CAM-C		01
C-058	592B048010	○	K-4		ARM-LOAD-S		01
C-059	592B047010	○	J-4		ARM-LOAD-T		01
C-060	621C261010	○	D-4		BRAKE-CP		01
C-061	572D645010	○	D-3		SPRING-B-CP		01
C-066	288P126010	○	C-2		MOTOR-CP	M470	01
C-069	621C308010	○	J-6		ARM-RIS		01
C-070	593C532010	○	K-5		PLATE-J		01
C-150	685C009010	○	K-4		GRIP-RING		01
C-152	669D224020		B-2		SCREW-TB	2.6X8	03
C-153	669D224010		K-4 G-3	K-5 H-3	SCREW-TB	2.6X6	04
C-158	552C018010	○	J-2 H-2	I-1	CUT-WASHER	2.5X6.0X0.5	03

ASSEMBLY DECK-3


A
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C
D
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I
J
K
L
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8
L-039
L-011
L-024
L-015
L-040
L-022
L-027
L-018
L-017
L-028
L-035
L-014
L-031
L-021
L-032
L-025
L-020
L-012
L-033
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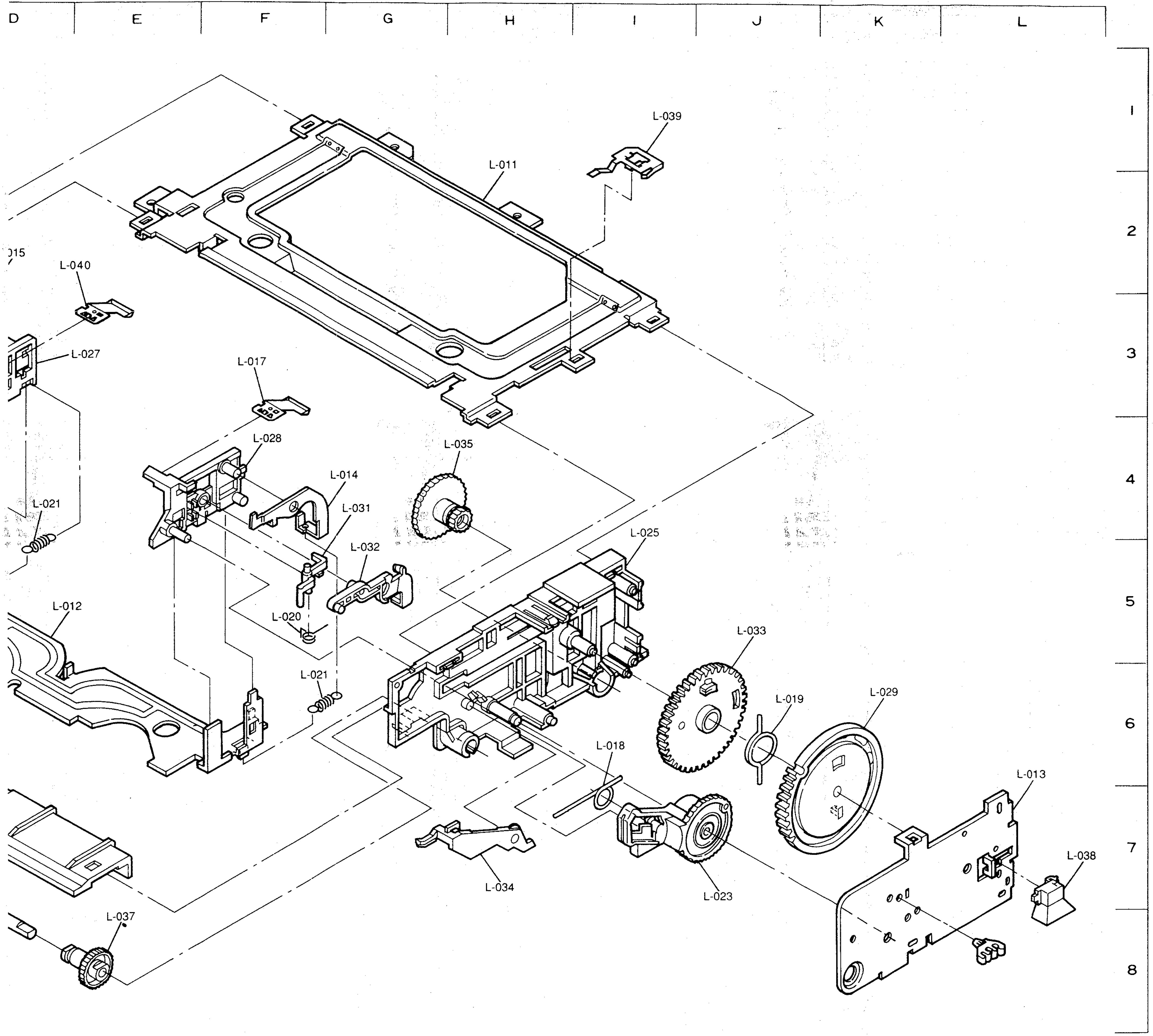
L-034
L-023
L-016
L-037


D
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F
G
H
I
J
K
L
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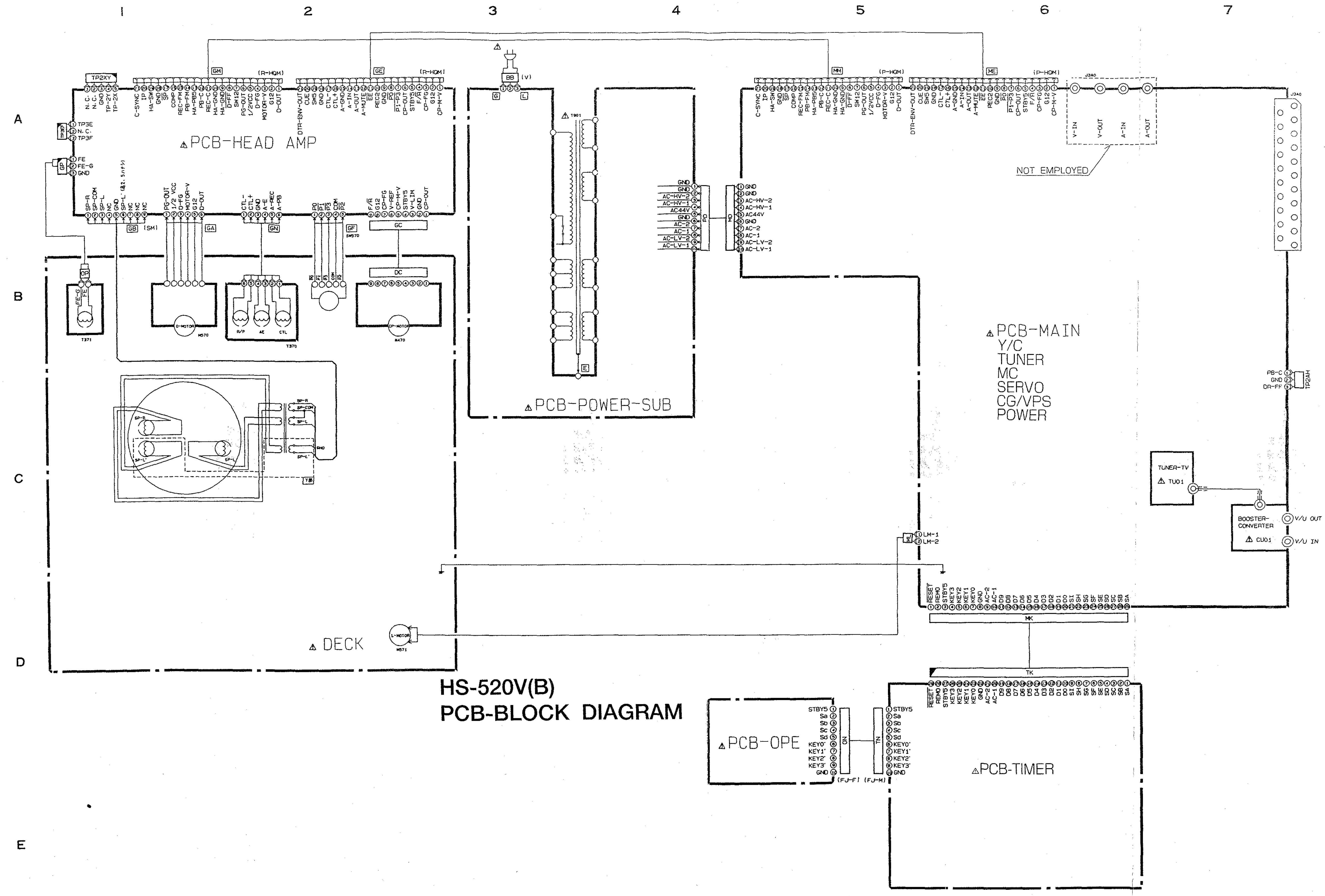
8
L-039
L-011
15
L-040
L-027
L-017
L-028
L-035
L-014
L-021
L-031
L-032
L-025
L-012
L-020
L-033
L-021
L-019
L-029
L-018
L-013
L-038
L-034
L-023
L-037

＊Settelled Service Parts

ITEM	PARTS No.	＊	ADDRESS		PARTS NAME	DESCRIPTION	Qt.
L-011	592B156010		H-1		PLATE-ROOF-J		01
L-012	592B150010		D-5		PLATE-BOTTOM-J		01
L-013	592B157010		L-6		PLATE-SIDE-J		01
L-014	596D986010		G-4		LEVER-LOCK-T		01
L-015	596D987010		D-2		LEVER-LOCK-S		01
L-016	631D443010		C-7		SHAFT-FL		01
L-017	572D634010		F-3		PLATE-SPR		01
L-018	572D631010	○	C-3	I-6	SPRING-ARM		02
L-019	572D632010		J-6		SPRING-CHIP		01
L-020	572D633010		F-5		SPRING-JUT		01
L-021	572D630020		D-4	F-6	SPRING-LOCK-T		02
L-022	621C250010	○	C-3		ARM-SP		01
L-023	641B719010		J-7		ARM-TU		01
L-024	641A360010		B-2		HOLDER-SIDE-SP		01
L-025	641A718010		I-4		HOLDER-SIDE-TU		01
L-026	621C249010		D-6		GUIDE-INSERT		01
L-027	641B626010		E-3		HOLDER-CAS-SP		01
L-028	641B638010		F-4		HOLDER-CAS-TU		01
L-029	641B625010	○	K-6		GEAR-SENS		01
L-031	622D231010	○	G-4		JUT-J		01
L-032	621C245010		G-5		OPENER-LID		01
L-033	622D227010	○	J-5		GEAR-DRIVE		01
L-034	622D230010	○	H-7		ARM-DOOR		01
L-035	621C252010	○	H-4		GEAR-WHEEL		01
L-036	622D225010	○	A-6		GEAR-S		01
L-037	622D226010	○	E-8		GEAR-T		01
L-038	622D228010		L-7		COVER-SENS		01
L-039	597D085010		I-1		PLATE-EARTH		01
L-040	572D634020		E-2		PLATE-SPR		01



1
2
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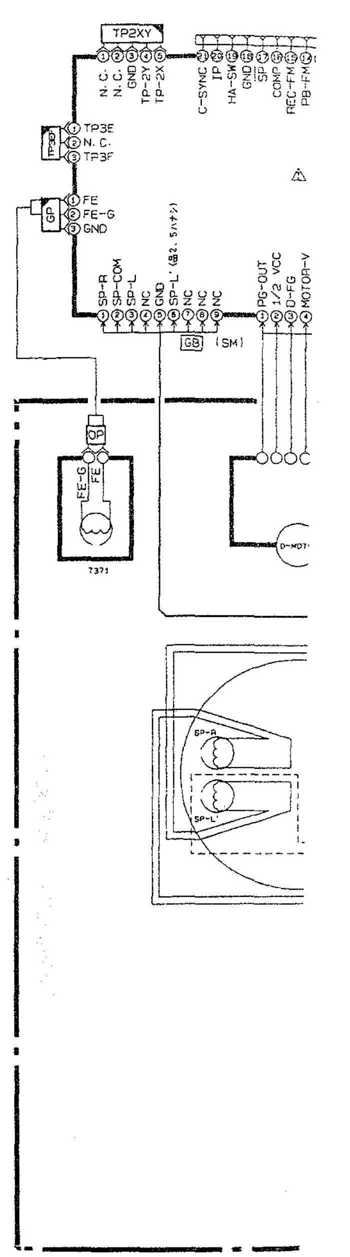
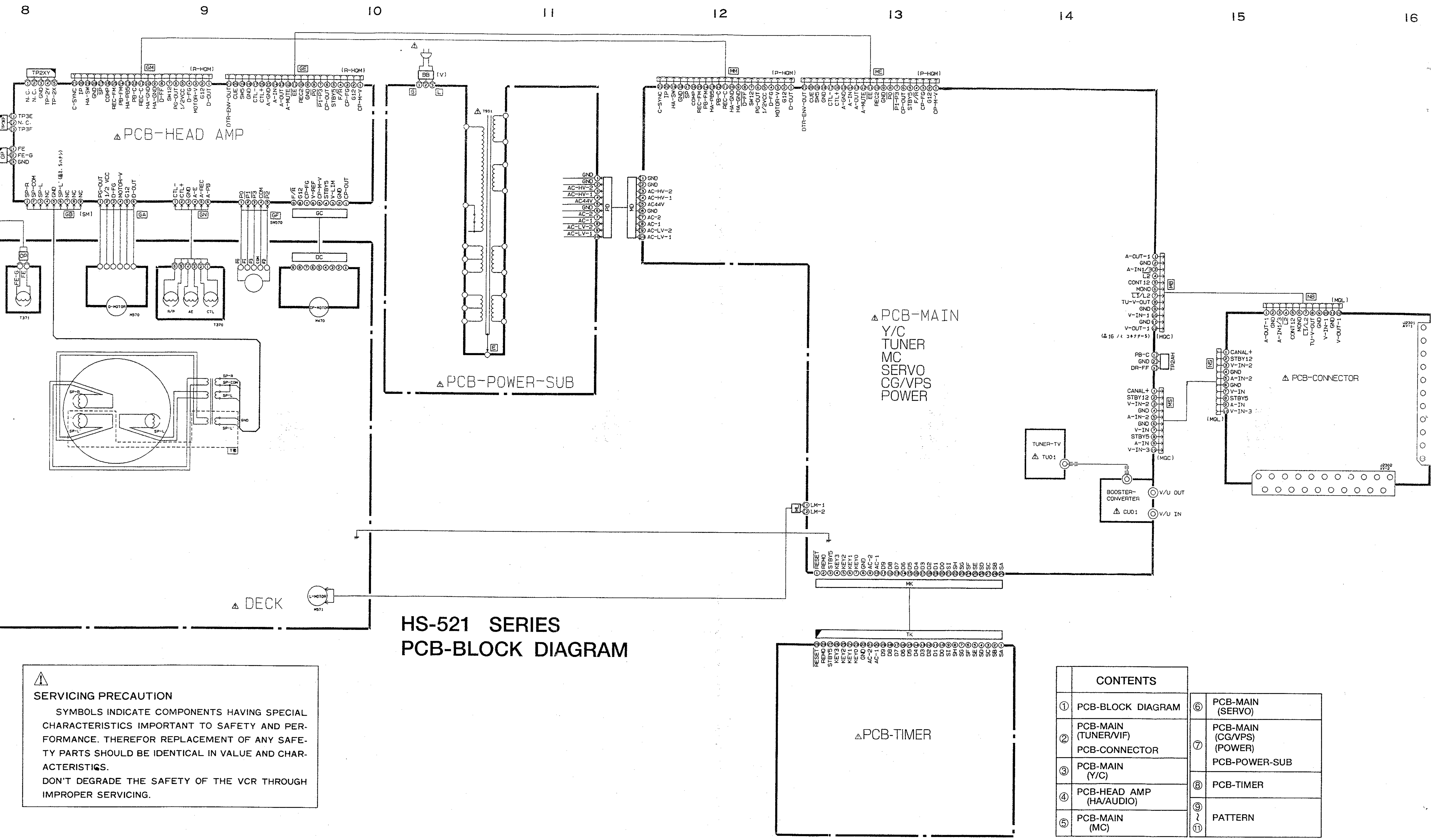
4
5
6
7
8
A
B
C
D
E
PCB-HEAD AMP
PCB-POWER-SUB
PCB-MAIN
Y/C
TUNER
MC
SERVO
CG/VPS
POWER
DECK
PCB-OPE
PCB-TIMER
TP2XY
GM
GE
GB
GA
GN
GF
GC
DC
BB
MM
ME
MK
TK
MQ
PQ
ON
TN
(R-HQM)
(P-HQM)
(FJ-F) (FJ-M)
T901
J3A0
NOT EMPLOYED
V-IN
V-OUT
A-IN
A-OUT
TUNER-TV
TU01
BOOSTER-CONVERTER
CU01
V/U OUT
V/U IN
PB-C
GND
DR-FF
TP2AH
LM-1
LM-2
D-MOTOR
M570
CP-MOTOR
M470
L-MOTOR
M571
T371
T370
R/P
AE
CTL
FE-G
FE
SP-R
SP-COM
SP-L
SP-L'
GND
AC-HV-2
AC-HV-1
AC44V
AC-2
AC-1
AC-LV-2
AC-LV-1
STBY5
Sa
Sb
Sc
Sd
KEY0'
KEY1'
KEY2'
KEY3'
RESET
REMO
KEY3
KEY2
KEY1
KEY0
C-SYNC
COMP
REC-FM
PB-FM
HA-PBS
PB-C
REC-C
HA-GND
D-FF
SW12
PG-OUT
1/2VCC
D-FG
MOTOR-V
G12
D-OUT
DTR-ENV-OUT
CUE
SW5
CTL-
CTL+
A-IN
A-OUT
A-MUTE
EE
REC2
P1-P3
CP-OUT
STBY5
F/R
CP-FG
CP-M-V

HS-520V(B)
PCB-BLOCK DIAGRAM



SERVICING PR
SYMBOLS IN
CHARACTERIST
FORMANCE. TH
TY PARTS SHO
ACTERISTICS.
DON'T DEGRAD
IMPROPER SEF


8
9
10
11
12
13
14
15
16
PCB-HEAD AMP
PCB-POWER-SUB
PCB-MAIN
Y/C
TUNER
MC
SERVO
CG/VPS
POWER
PCB-CONNECTOR
DECK
PCB-TIMER
TUNER-TV
TU01
BOOSTER-CONVERTER
CU01
V/U OUT
V/U IN
D-MOTOR
CP-MOTOR
L-MOTOR
T901
TP2XY
GM
GE
MM
ME
BB
GB
GA
GN
GF
GC
DC
MK
TK
MB
NB
NS
MS
PD
MD
(R-HQM)
(P-HQM)
(MQC)
(MQL)

HS-521 SERIES PCB-BLOCK DIAGRAM

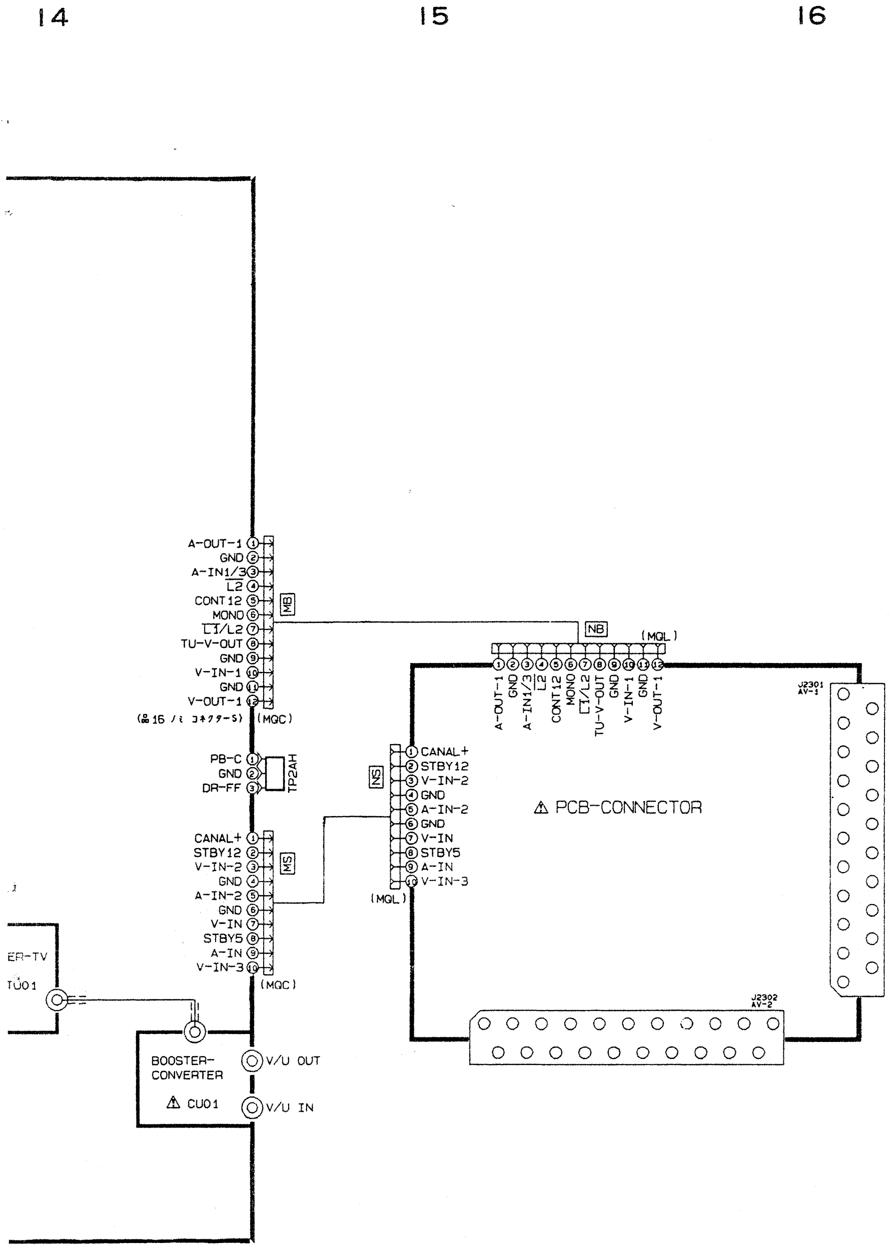
⚠

SERVICING PRECAUTION

SYMBOLS INDICATE COMPONENTS HAVING SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY AND PERFORMANCE. THEREFOR REPLACEMENT OF ANY SAFETY PARTS SHOULD BE IDENTICAL IN VALUE AND CHARACTERISTICS.

DON'T DEGRADE THE SAFETY OF THE VCR THROUGH IMPROPER SERVICING.

	CONTENTS		
①	PCB-BLOCK DIAGRAM	⑥	PCB-MAIN (SERVO)
②	PCB-MAIN (TUNER/VIF) PCB-CONNECTOR	⑦	PCB-MAIN (CG/VPS) (POWER) PCB-POWER-SUB
③	PCB-MAIN (Y/C)	⑧	PCB-TIMER
④	PCB-HEAD AMP (HA/AUDIO)	⑨~⑪	PATTERN
⑤	PCB-MAIN (MC)		


14
15
16
A-OUT-1 ①
GND ②
A-IN1/3 ③
L2 ④
CONT12 ⑤
MONO ⑥
L1/L2 ⑦
TU-V-OUT ⑧
GND ⑨
V-IN-1 ⑩
GND ⑪
V-OUT-1 ⑫
MB
(品16 ﾉﾐ ｺﾈｸﾀｰS)
(MQC)
PB-C ①
GND ②
DR-FF ③
TP2AH
CANAL+ ①
STBY12 ②
V-IN-2 ③
GND ④
A-IN-2 ⑤
GND ⑥
V-IN ⑦
STBY5 ⑧
A-IN ⑨
V-IN-3 ⑩
MS
(MQC)
NB
(MQL)
NS
(MQL)
⚠ PCB-CONNECTOR
J2301 AV-1
J2302 AV-2
ER-TV
TU01
BOOSTER-CONVERTER
⚠ CU01
V/U OUT
V/U IN

SCHEMATIC DIAGRAM

• NOTE

1. Each voltage should be within ±20% of the DC voltages measured with a digital voltmeter.
2. The voltages parenthesised are on SP recording mode. While those without parenthesised on SP play back mode.
3. Waveforme were taken with standard colour bar signal.
4. TP6A, etc. show Test Points.

5. CAPACITORS

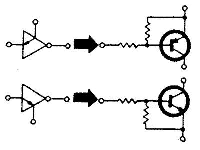
Value		Not indicated: PF, for numbers more than 1 μF, for numbers less than 1
Dielectric Strength		Not indicated :50V
Tolerance		Not indicated =±10% (No Tolerance is indicated for electrolytic capacitors and ±20%) G=±2% P=+100% −0% Q=+30% −10% C=±0.25PF J=±5% Z=+80% −20% T=+200% −0% D=±0.5PF K=±10% F=±1PF M=±20% G=±2PF
Sort	I Parts except for chips	Not indicated : Ceramic capacitor MF : Polyester capacitor PP : Polypropylene film capacitor ALM : Aluminus electrolytic capacitor TF : Twin film capacitor SC : Semiconductor ceramic capacitor MP : Metalized paper MPP : Metalized plastic film capacitor MMF : Metalized polyester capacitor MF.PP : Polyester polypropylene film capacitor PS : Styrol capacitor TAN or TANT : Tantalum capacitor —⊣⊢— : Electrolytic capacitor BP or NP : Non polarized electrolytic capacitor
	II Chips	Not indicated : Ceramic capacitor chip —⊣⊢— : Electrolytic capacitor BP or NP : Non polarized electrolytic capacitor chip
Characteristic (only ceramic capacitor)		Not indicated : F or B(high dielectric percentage) CH,SL,etc. : Temperature compensating types

6. Resistors

Value		Not indicated = Ω K = kΩ(1000Ω) M = MΩ(1000kΩ)
Wattage	Parts except for chips	Not indicated = 1/4W or 1/6W
	Chips	Not indicated = 1/10W
Tolerance		Not indicated =±5% D=±0.5% J=±5% F=±1% K=±10%
Short	I Parts except for chips	Not indicated : Carbon resistor S : Fixed composition resistor MB : Metal oxide film resistor(type B) CE : Cemented resister W : Wire wound resister M : Metal film resister MPC : Metal plate cement resister ML : Metal liner resister
	II Chip	Not indicated : Chip resistor

7. This is a basic schematic diagram. Some sets may be subject to modification according to engineering improvement.

SPECIFIC SYMBOL	
Zener Diode	Crystal unit
Varicap	LE Diode
Thermistor	Photo Diode
Fusible Resistor	Ceramic filter



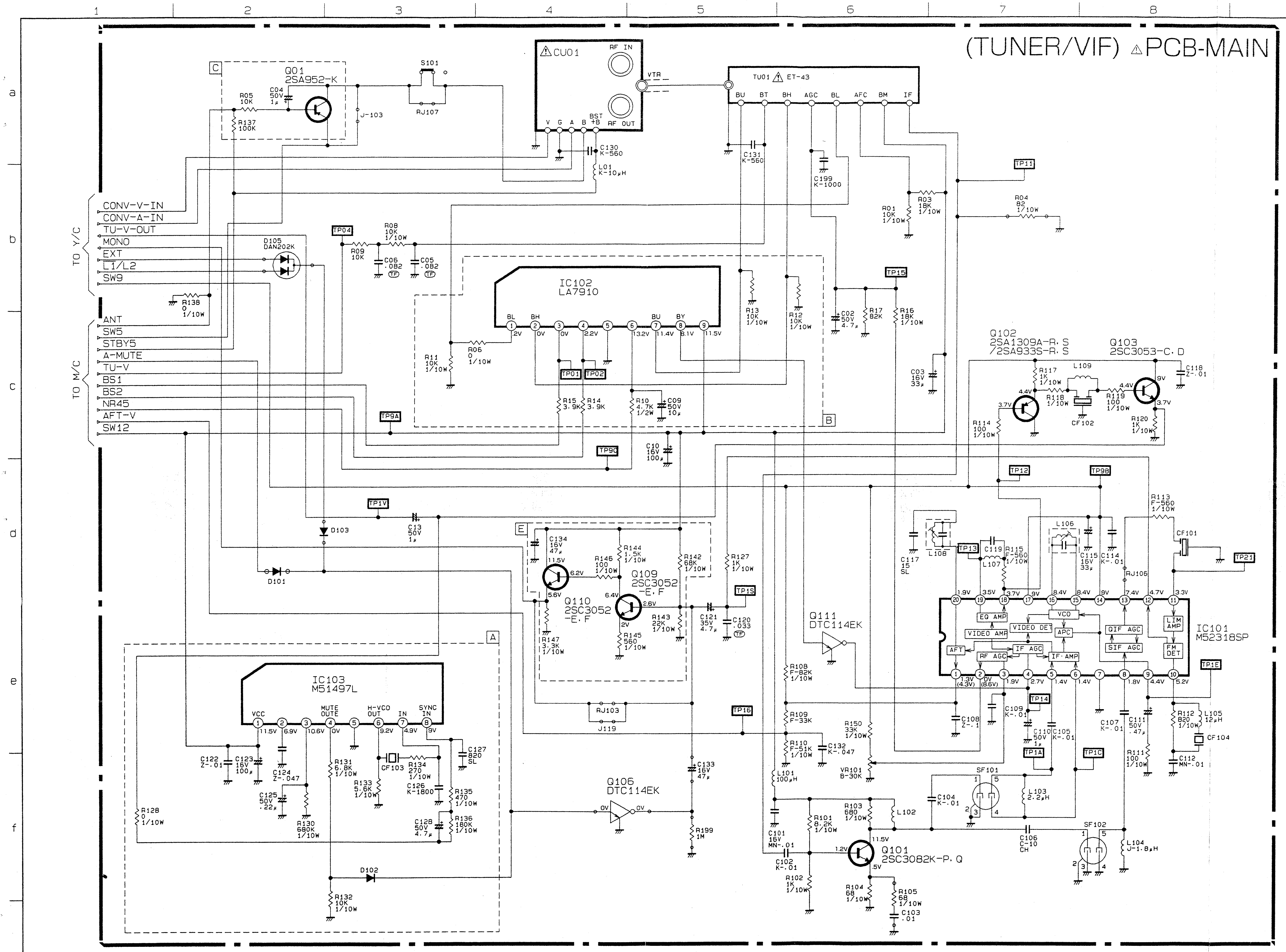
PNP DIGITAL TRANSISTOR

NPN DIGITAL TRANSISTOR

	CONTENTS		
①	PCB-BLOCK DIAGRAM	⑥	PCB-MAIN (SERVO)
②	PCB-MAIN (TUNER/VIF) PCB-CONNECTOR	⑦	PCB-MAIN (CG/VPS) (POWER) PCB-POWER-SUB
③	PCB-MAIN (Y/C)	⑧	PCB-TIMER
④	PCB-HEAD AMP (HA/AUDIO)	⑨ ~ ⑪	PATTERN
⑤	PCB-MAIN (MC)		

HS-520V(B),HS-521(Y)
HS-521V(B)(E)(G)(IR)

(TUNER/VIF) ⚠PCB-MAIN


CU01
RF IN
RF OUT
VTR
TU01 ET-43
BU BT BH AGC BL AFC BM IF
Q01 2SA952-K
S101
RJ107
J-103
CONV-V-IN
CONV-A-IN
TU-V-OUT
MONO
EXT
L1/L2
SW9
ANT
SW5
STBY5
A-MUTE
TU-V
BS1
BS2
NR45
AFT-V
SW12
TO Y/C
TO M/C
D105 DAN202K
IC102 LA7910
Q102 2SA1309A-R, S /2SA933S-R, S
Q103 2SC3053-C, D
Q109 2SC3052 -E, F
Q110 2SC3052 -E, F
Q111 DTC114EK
IC101 M52318SP
EQ AMP
VIDEO AMP
VIDEO DET
VCO
APC
QIF AGC
SIF AGC
LIM AMP
FM DET
AFT
RF AGC
IF AGC
IF AMP
IC103 M51497L
VCC
MUTE OUTE
H-VCO OUT
IN
SYNC IN
Q106 DTC114EK
Q101 2SC3082K-P, Q
SF101
SF102
CF101
CF102
CF103
CF104
D101
D102
D103
RJ103
J119
TP01 TP02 TP04 TP11 TP12 TP13 TP14 TP15 TP16 TP1A TP1C TP1E TP1V TP21 TP9A TP9B TP9D TP1S
1 2 3 4 5 6 7 8 9 10 11
a b c d e f

ALL DIODES ARE 1SS252/1SS131 UNLESS OTHERWISE SPECIFIED.

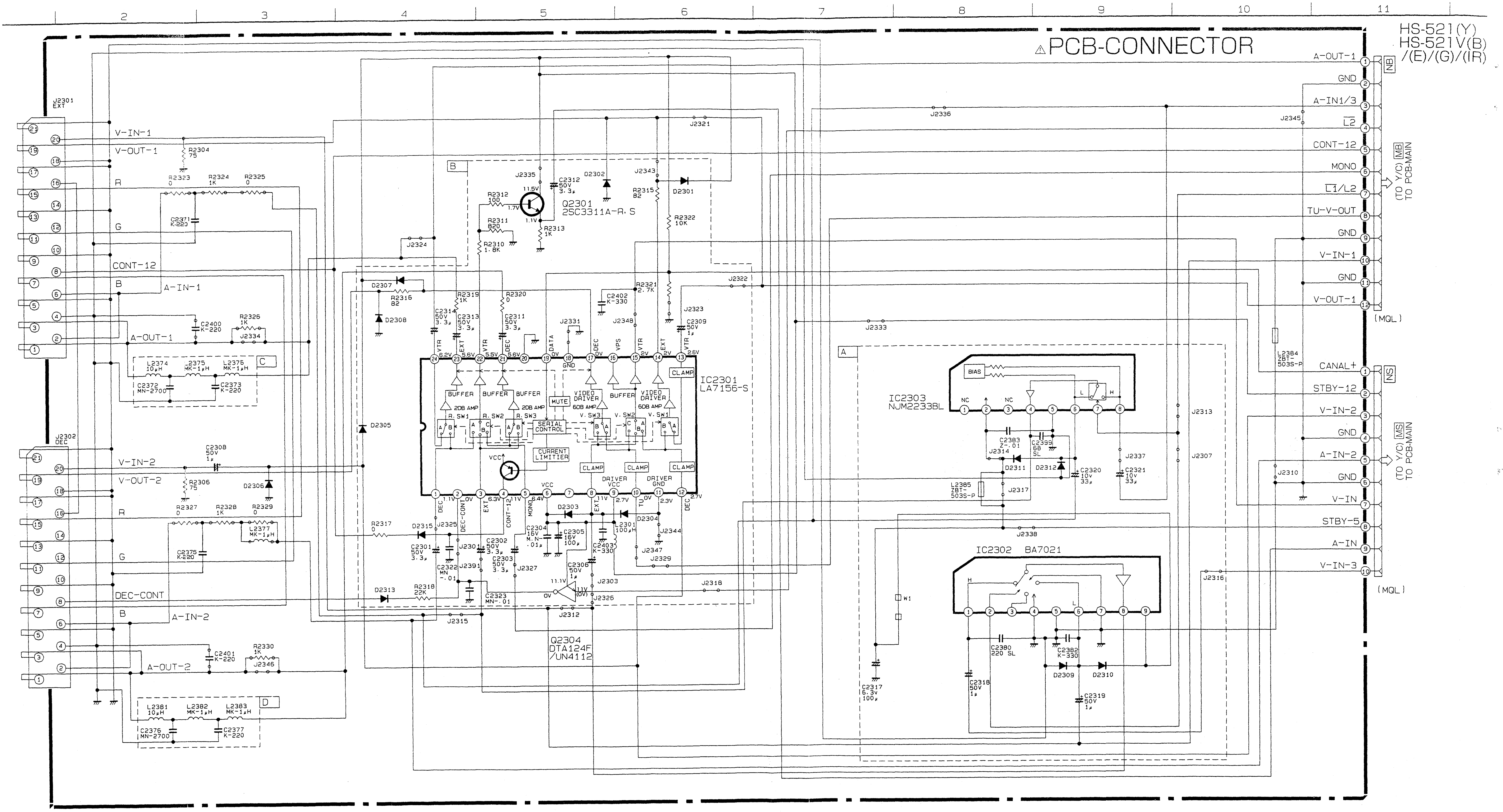
HS-520V(B),HS-521(Y)
HS-521V(B)(E)(G)(IR)

②

○ : Employed　　✕ : Not employed

SYMBOL	ADDRESS	(Y)	(B)	(E)	(IR)	(G)	(A)
A AREA	e-5	○	✕	○	✕	○	✕
B AREA	c-6	○	✕	○	○	○	○
C AREA	a-1	✕	✕	✕	✕	✕	○
E AREA	d-4	○	✕	✕	✕	○	✕
C103	f-7	✕	✕	✕	✕	✕	○
C119	d-7	18SL	15SL	18SL	39SL	18SL	15SL
C133	f-5	○	✕	○	✕	○	✕
D101	d-2	○	✕	○	✕	○	✕
D103	b-2	✕	✕	✕	✕	✕	✕
D105	b-2	✕	✕	✕	✕	✕	✕
J103	a-3	○	○	○	○	○	✕
J119	e-4	✕	✕	✕	✕	✕	○
L102	f-7	1.2μ	1.2μ	1.2μ	1.2μ	1.2μ	2.2μ
L107	d-7	39μ	56μ	39μ	27μ	39μ	47μ
L109	c-8	J-5.6μH	J-8.2μH	J-5.6μH	J-5.6μH	J-5.6μH	J-5.6μH
Q106	e-3	○	✕	○	✕	○	✕
Q111	e-6	○	✕	○	✕	○	✕
R04	b-7	✕	○	✕	○	✕	○
R105	f-6	✕	✕	✕	✕	✕	○
R118	c-8	F-150	F-390	F-150	F-270	F-150	F-180
R138	a-2	○	○	○	○	○	✕
R199	d-3	○	✕	○	✕	○	✕
RJ103	e-4	✕	○	○	○	✕	✕
RJ106	d-8	○	○	○	○	○	○
RJ107	a-3	✕	✕	✕	✕	✕	○
S101	a-3	○	○	○	○	○	✕

(B) : Means HS-520V(B) and HS-521V(B)


2
3
4
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6
7
8
9
10
11
⚠PCB-CONNECTOR
HS-521(Y)
HS-521V(B)
/(E)/(G)/(IR)
J2301 EXT
V-IN-1
V-OUT-1
R
G
CONT-12
B
A-IN-1
A-OUT-1
R2304 75
R2323 0
R2324 1K
R2325 0
C2371 K-220
C2400 K-220
R2326 1K
J2334
L2374 10μH
L2375 MK-1μH
L2375 MK-1μH
C2372 MN-2700
C2373 K-220
C
J2302 DEC
V-IN-2
V-OUT-2
DEC-CONT
A-IN-2
A-OUT-2
C2308 50V 1μ
R2306 75
D2306
R2327 0
R2328 1K
R2329 0
L2377 MK-1μH
C2375 K-220
C2401 K-220
R2330 1K
J2346
L2381 10μH
L2382 MK-1μH
L2383 MK-1μH
C2376 MN-2700
C2377 K-220
D
B
J2335
C2312 50V 3.3μ
D2302
J2343
D2301
Q2301 2SC3311A-R, S
R2312 100
R2311 820
R2310 1.8K
R2313 1K
R2315 82
R2322 10K
J2321
J2324
D2307
R2316 82
D2308
R2319 1K
R2320 0
C2314 50V 3.3μ
C2313 50V 3.3μ
C2311 50V 3.3μ
C2402 K-330
R2321 2.7K
J2331
J2348
J2323
C2309 50V 1μ
J2322
IC2301 LA7156-S
BUFFER
20B AMP
R. SW1
R. SW2
R. SW3
SERIAL CONTROL
MUTE
VIDEO DRIVER
60B AMP
V. SW3
V. SW2
V. SW1
CLAMP
CURRENT LIMITIER
VCC
DRIVER VCC
DRIVER GND
D2305
R2317 0
D2315
J2325
C2301 50V 3.3μ
C2322 MN -.01
J2330
J2391
C2302 50V 3.3μ
C2303 50V 3.3μ
J2327
D2303
C2304 16V M.N. .01μ
C2305 16V 100μ
C2403 K-330
L2301 100μH
D2304
J2344
J2347
J2329
C2306 50V 1μ
J2303
J2326
J2318
D2313
R2318 22K
C2323 MN-.01
J2312
J2315
Q2304 DTA124F /UN4112
J2336
J2345
J2333
A
IC2303 NJM2233BL
BIAS
NC
C2383 Z-.01
C2399 68 SL
J2314
D2311
D2312
C2320 10V 33μ
C2321 10V 33μ
J2337
J2313
J2307
L2385 ZBT-503S-P
J2317
J2338
IC2302 BA7021
W1
C2380 220 SL
C2382 K-330
D2309
D2310
C2317 6.3V 100μ
C2318 50V 1μ
C2319 50V 1μ
J2316
J2310
L2384 ZBT-503S-P
A-OUT-1
GND
A-IN1/3
L2
CONT-12
MONO
L1/L2
TU-V-OUT
GND
V-IN-1
GND
V-OUT-1
NB
MB
(TO Y/C) TO PCB-MAIN
(MQL)
CANAL+
STBY-12
V-IN-2
GND
A-IN-2
GND
V-IN
STBY-5
A-IN
V-IN-3
NS
MS
(TO Y/C) TO PCB-MAIN
(MQL)

All diodes are 1SS252/1SS1310M unless otherwise specified.

oyed

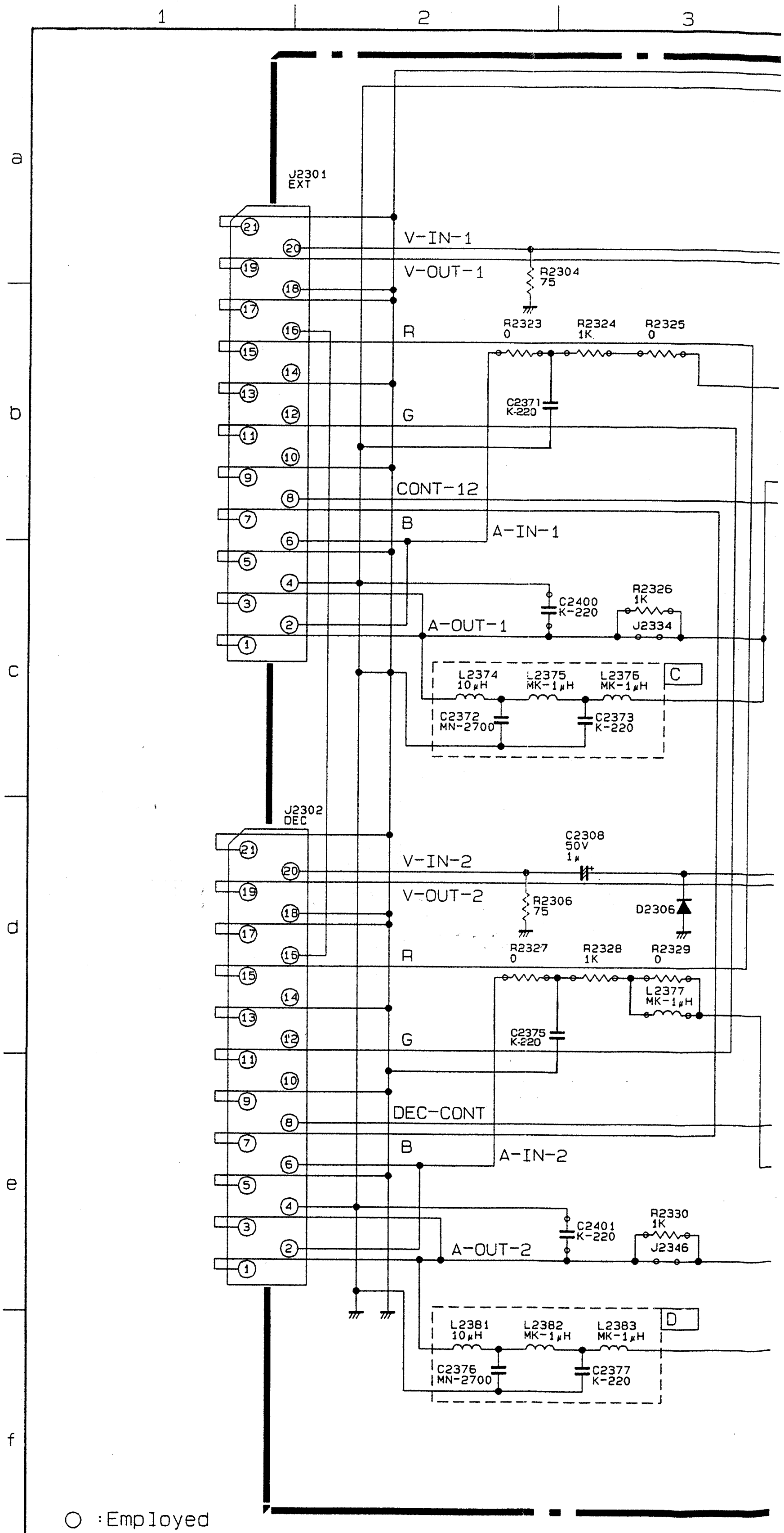
-4	e-5	a-7	d~f, 7~9	c-4	d-2	b-10	f-3	b-4	b-3	c-7	d-9	d-9	d-8	e-10	d-8	d-9	e-8	e-2	e-3	f-3	d-10	e-3	c-3	c-3
315	J2312	J2336	A AREA	B AREA	C AREA	J2345	D AREA	J2324	J2321	J2333	J2307	J2313	J2314	J2316	J2317	J2337	J2338	C2401	R2330	J2346	J2310	L2377	J2334	R2326
×	×	○	×	×	×	×	×	○	○	×	×	×	×	×	×	×	×	×	×	×	×	○	○	×
)	○	×	×	○	×	○	×	×	×	○	○	○	○	○	○	○	○	○	○	×	○	×	×	○

10 11

Employed ╳ : Not employed

MODEL / ADDRESS	(Y)	(B)	(E)	(IR)	(G)	(A)	(NZ)	(SA)
e-5	○	╳	○	╳	○	╳	╳	╳
c-6	○	╳	○	○	○	○	○	○
a-1	╳	╳	╳	╳	╳	○	○	╳
d-4	○	╳	╳	╳	○	╳	╳	╳
f-7	╳	╳	╳	╳	╳	○	○	╳
d-7	18SL	15SL	18SL	39SL	18SL	15SL	12SL	18SL
f-5	○	╳	○	╳	○	╳	╳	○
d-2	○	╳	○	╳	○	╳	╳	╳
b-2	╳	╳	╳	╳	╳	╳	╳	○
b-2	╳	╳	╳	╳	╳	╳	╳	○
a-3	○	○	○	○	○	╳	╳	○
e-4	╳	╳	╳	╳	╳	○	○	╳
f-7	1.2μ	1.2μ	1.2μ	1.2μ	1.2μ	2.2μ	1.2μ	1.2μ
d-7	39μ	56μ	39μ	27μ	39μ	47μ	39μ	47μ
c-8	J-5.6μH	J-8.2μH	J-5.6μH	J-5.6μH	J-5.6μH	J-5.6μH	J-5.6μH	J-5.6μH
e-3	○	╳	○	╳	○	╳	╳	○
e-6	○	╳	○	╳	○	╳	╳	╳
b-7	╳	○	╳	○	╳	○	○	○
f-6	╳	╳	╳	╳	╳	○	○	╳
c-8	F-150	F-390	F-150	F-270	F-150	F-180	F-220	F-200
a-2	○	○	○	○	○	╳	╳	○
d-3	○	╳	○	╳	○	╳	╳	○
e-4	╳	○	○	○	╳	╳	╳	○
d-8	○	○	○	○	○	○	○	○
a-3	╳	╳	╳	╳	╳	○	○	╳
a-3	○	○	○	○	○	╳	╳	○

/leans HS-520V(B) and HS-521V(B)

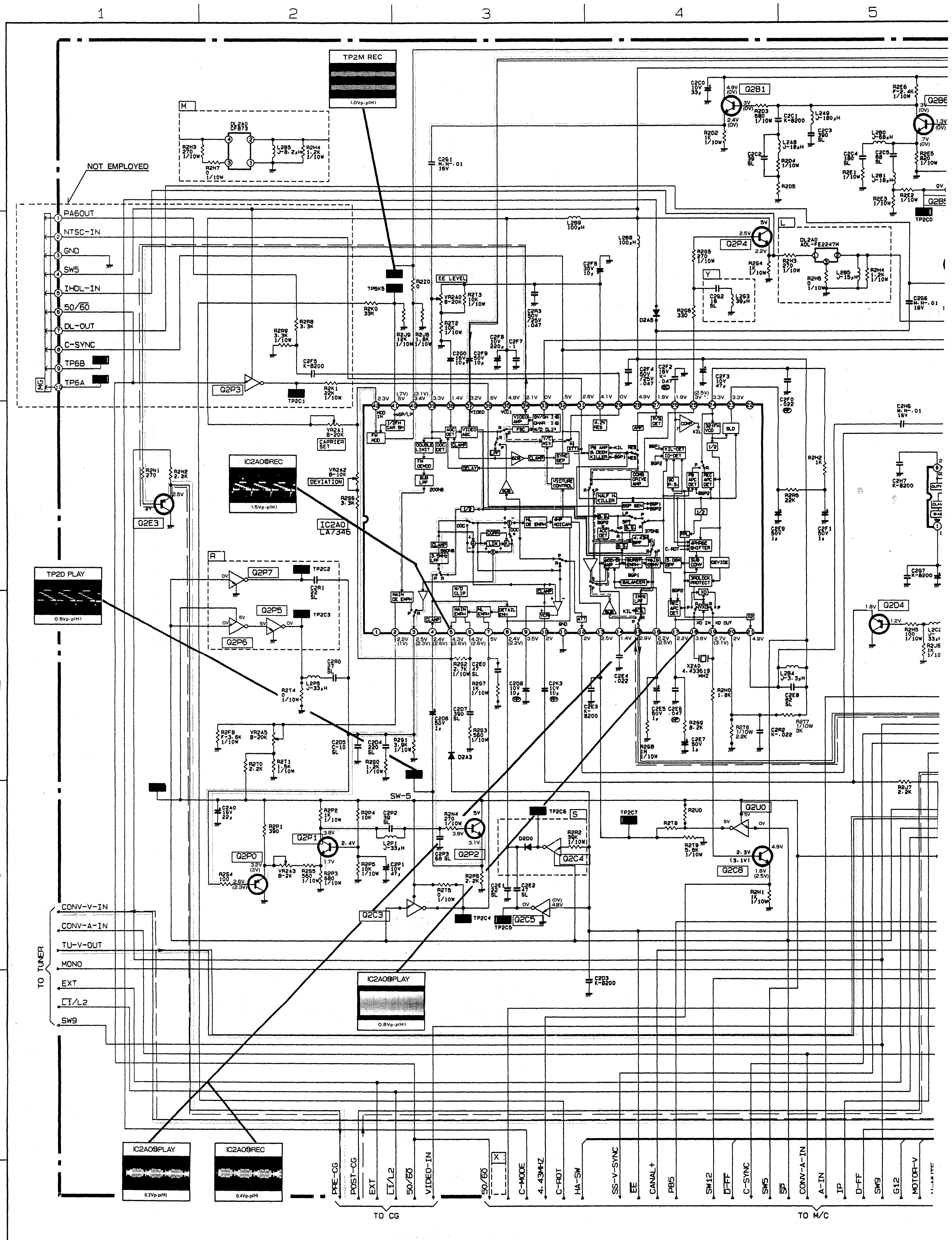

1
2
3
a
b
c
d
e
f
J2301
EXT
21
20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
V-IN-1
V-OUT-1
R2304
75
R
R2323
0
R2324
1K
R2325
0
C2371
K-220
G
CONT-12
B
A-IN-1
C2400
K-220
R2326
1K
J2334
A-OUT-1
L2374
10μH
L2375
MK-1μH
L2376
MK-1μH
C
C2372
MN-2700
C2373
K-220
J2302
DEC
21
20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
V-IN-2
C2308
50V
1μ
V-OUT-2
R2306
75
D2306
R
R2327
0
R2328
1K
R2329
0
L2377
MK-1μH
C2375
K-220
G
DEC-CONT
B
A-IN-2
C2401
K-220
R2330
1K
J2346
A-OUT-2
L2381
10μH
L2382
MK-1μH
L2383
MK-1μH
D
C2376
MN-2700
C2377
K-220

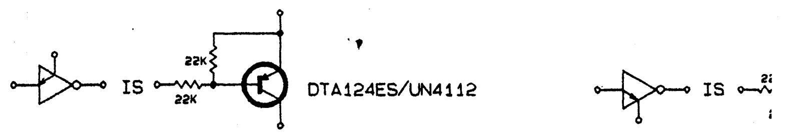
○ :Employed

╳ :Not Employed

All diodes are 1SS252/1SS13

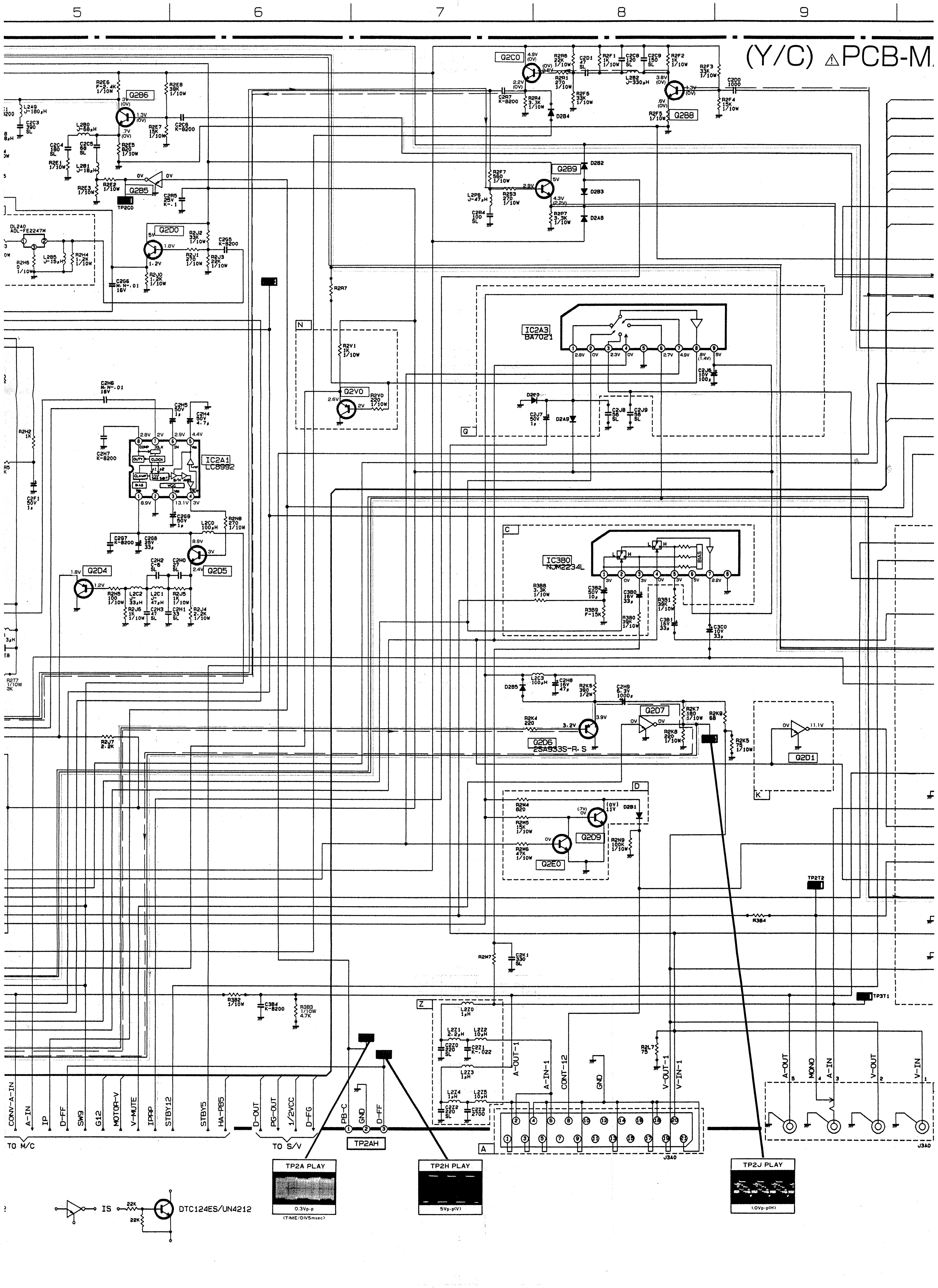
ADDRESS	e-4	e-5	a-7	d~f, 7~9	c-4	d-2	b-10	f-3	b-4	b-3
MODEL / SYMBOL	J2315	J2312	J2336	A AREA	B AREA	C AREA	J2345	D AREA	J2324	J2321
HS-521V(B)/(E)/(IR)	╳	╳	○	╳	╳	╳	╳	╳	○	○
HS-521(Y),HS-521V(G)	○	○	╳	╳	○	╳	○	╳	╳	╳


1
2
3
4
5
a
b
c
d
e
f
g
NOT EMPLOYED
PA6OUT
NTSC-IN
GND
SW5
IHDL-IN
50/60
DL-OUT
C-SYNC
TP6B
TP6A
MG
M
DL2A0 CF873
R
S
L
Y
X
TP2M REC
1.0Vp-p(H)
TP2D PLAY
0.5Vp-p(H)
IC2A0⑤REC
1.5Vp-p(H)
IC2A0⑤PLAY
0.8Vp-p(H)
IC2A0⑨PLAY
0.2Vp-p(H)
IC2A0⑨REC
0.4Vp-p(H)
IC2A0
LA7346
CARRIER SET
DEVIATION
EE LEVEL
SW-5
Q2B1
Q2P4
Q2P3
Q2E3
Q2P7
Q2P5
Q2P6
Q2P0
Q2P1
Q2P2
Q2C3
Q2C4
Q2C5
Q2C8
Q2U0
Q2D4
DL2A0 ADL-FE2247H
X2A0 4.433619 MHZ
TP2C1
TP2C2
TP2C3
TP2C4
TP2C5
TP2C6
TP2C7
TP2C0
TP5K5
TO TUNER
CONV-V-IN
CONV-A-IN
TU-V-OUT
MONO
EXT
L1/L2
SW9
TO CG
PRE-CG
POST-CG
EXT
L1/L2
50/60
VIDEO-IN
TO M/C
50/60
C-MODE
4.43MHZ
C-ROT
HA-SW
SS-V-SYNC
EE
CANAL+
PB5
SW12
D-FF
C-SYNC
SW5
SP
CONV-A-IN
A-IN
IP
D-FF
SW9
G12
MOTOR-V

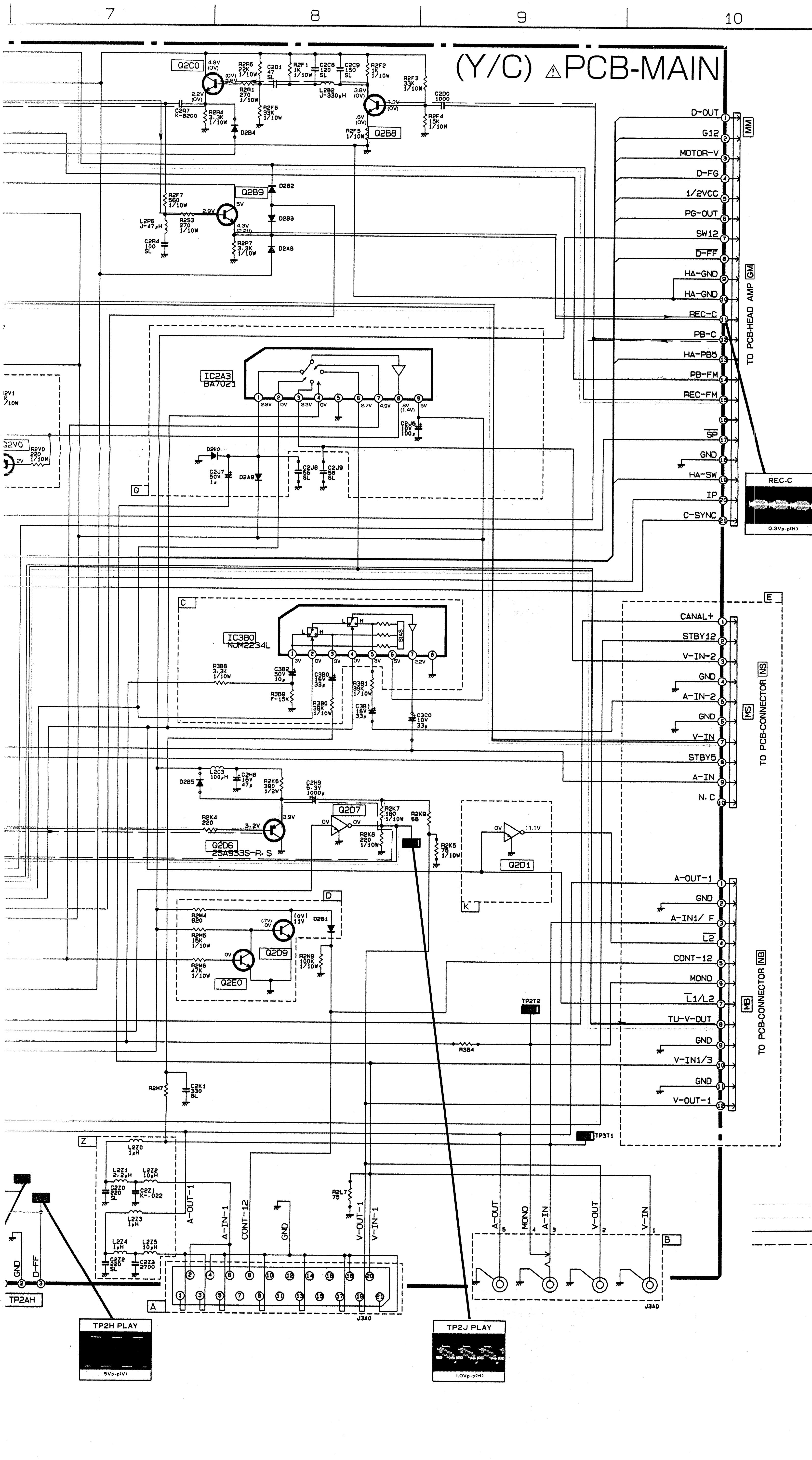

IS
22K
22K
DTA124ES/UN4112
IS

All diodes are 1SS252 /1SS131 unless otherwise specified.
All NPN transistors are 2SC3053-C·D unless otherwise specified.
All PNP transistors are 2SA1235-E·F unless otherwise specified.

(Y/C) △PCB-M


5
6
7
8
9
Q2C0
Q2B8
Q2B9
Q2B6
Q2B5
TP2C0
Q2D0
DL2A0
ADL-FE2247M
IC2A3
BA7021
Q2V0
N
Q
IC2A1
LC8992
Q2D4
Q2D5
C
IC3B0
NJM2234L
BIAS
Q2D6
2SA933S-R·S
Q2D7
Q2D1
K
D
Q2D9
Q2E0
TP2T2
TP3T1
R3B4
Z
A
J3A0
CONV-A-IN
A-IN
IP
D-FF
SW9
G12
MOTOR-V
V-MUTE
IPRP
STBY12
STBY5
HA-PB5
TO M/C
D-OUT
PG-OUT
1/2VCC
D-FG
TO S/V
PB-C
GND
D-FF
TP2AH
A-OUT-1
A-IN-1
CONT-12
GND
V-OUT-1
V-IN-1
A-OUT
MONO
A-IN
V-OUT
V-IN
TP2A PLAY
0.3Vp-p
(TIME/DIV5msec)
TP2H PLAY
5Vp-p(V)
TP2J PLAY
1.0Vp-p(H)
IS
22K
22K
DTC124ES/UN4212

(Y/C) ⚠PCB-MAIN



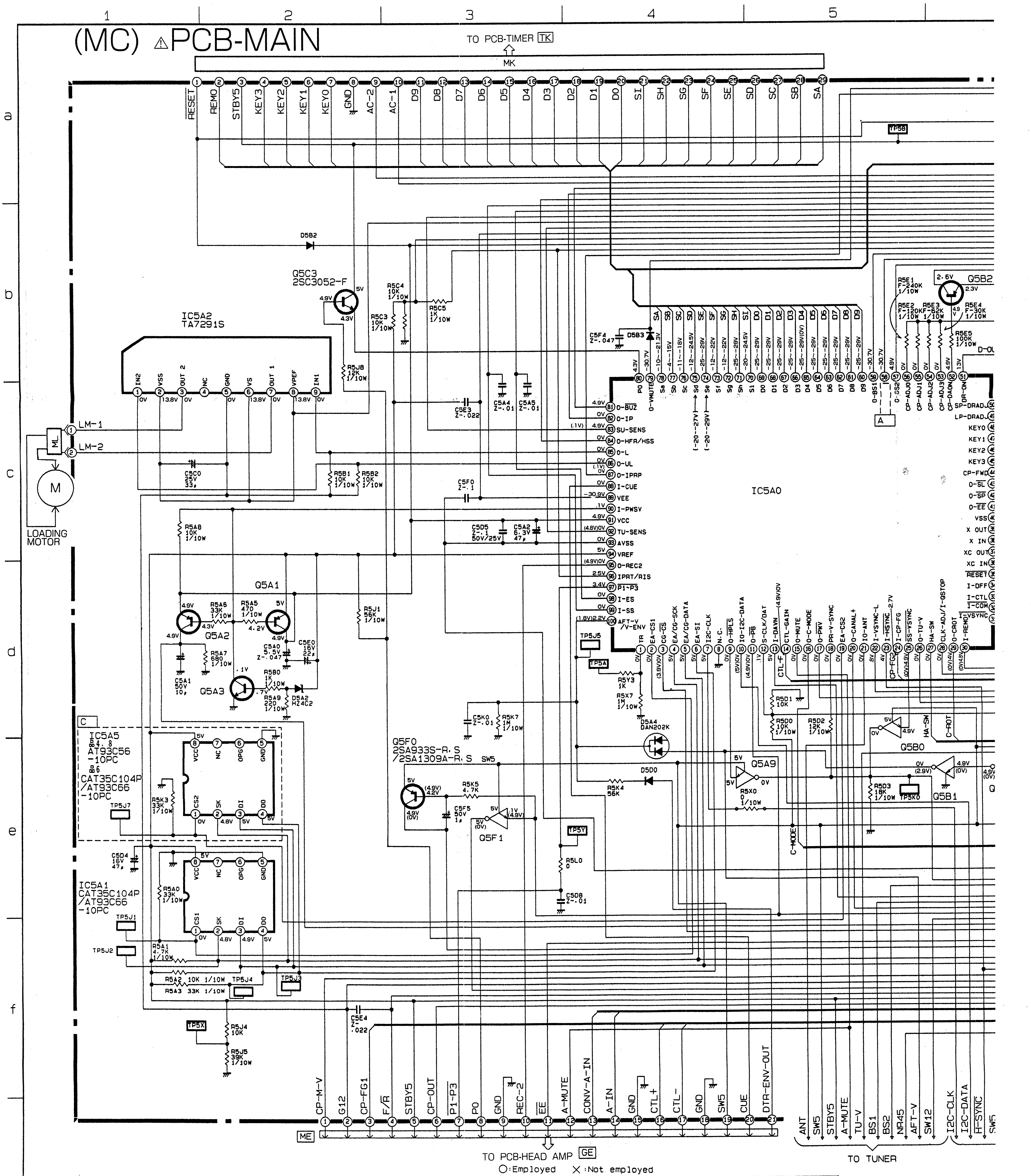
7
8
9
10
11
D-OUT
G12
MOTOR-V
D-FG
1/2VCC
PG-OUT
SW12
D-FF
HA-GND
HA-GND
REC-C
PB-C
HA-PB5
PB-FM
REC-FM
SP
GND
HA-SW
IP
C-SYNC
MM
GM
TO PCB-HEAD AMP
REC-C
0.3Vp-p(H)
CANAL+
STBY12
V-IN-2
GND
A-IN-2
GND
V-IN
STBY5
A-IN
N.C
NS
MS
TO PCB-CONNECTOR
A-OUT-1
GND
A-IN1/ F
L2
CONT-12
MONO
L1/L2
TU-V-OUT
GND
V-IN1/3
GND
V-OUT-1
NB
MB
TO PCB-CONNECTOR
Q2C0
Q2B8
Q2B9
IC2A3
BA7021
IC3B0
NJM2234L
Q2D7
Q2D6
2SA933S-R, S
Q2D1
Q2D9
Q2E0
TP2T2
TP3T1
J3A0
TP2AH
TP2H PLAY
5Vp-p(V)
TP2J PLAY
1.0Vp-p(H)
A-OUT
MONO
A-IN
V-OUT
V-IN
V-IN-1
V-OUT-1
GND
CONT-12
A-IN-1
A-OUT-1
D-FF
GND
A
B
C
D
E
K
Q
Z

Recording of Luminance Signal
Playback of Luminance Signal
Recording of Color Signal
Playback of Color Signal

←:Means same as left side
○:Employed ×:Not Employed

SYMBOL \ MODEL	HS-521(Y)	HS-520V(B)	HS-521V(B)/(IR)	HS-521V(E)	HS-521V(G)	HS-521V(A)
A AREA (g-8)	×	○	×	×	×	×
B AREA (g-9)	×	×	×	×	×	○
C AREA (d-8)	×	○	○	○	×	○
D AREA (e-7,8)	×	○	○	○	×	×
E AREA (d,e-10)	○	×	○	○	○	×
K AREA (d,e-9)	○	×	○	○	○	×
L AREA (b-5)	×	×	×	×	×	○
M AREA (a-2)	○	○	○	○	○	×
R2E1 (a-5)	1.5 K	2.7 K	←	1.5 K	←	2.7 K
N AREA (c-6,7)	×	×	○	○	○	×
Q AREA (b,c-8)	×	○	○	○	×	○
R AREA (c,d-2)	×	○	○	×	×	○
C3B1/R3B1 (d-8)	×	×	○	○	×	×
S AREA (e-3)	×	○	○	×	×	○
R2K5 (e-9)	○	×	×	×	○	×
Q2C3 (e-3)	×	○	○	×	×	○
R2L7 (f-8)	×	○	×	×	×	○
C2J8 (c-8)	×	○	○	○	×	×
R2F5 (a-8)	270	220	←	270	←	220
R2E2 (a-5)	220	270	←	220	←	270
R2E3 (a-5)	×	560	←	×	×	560
R2R7 (b-6)	×	220	←	←	0Ω	220
C2E0/R2G7 (d-3)	×	○	○	×	×	○
D2A6 (b-4)	○	×	×	○	○	×
R2T8 (e-4)	5.6 K	4.7 K	←	5.6 K	←	4.7 K
R2D5 (a-5)	680	820	←	680	←	820
R3B2 (f-6)	1.2 K	0Ω	←	←	1.2 K	0Ω
R2T4 (d-2)	○	×	×	○	○	×
R2T5 (e-3)	○	×	×	○	○	×
R2D4 (a-5)	220	180	←	220	←	180
R2U0 (e-4)	0	390	←	0	←	390
Q2U0 (e-4)	×	○	○	×	×	○
Y AREA (b-4)	○	×	×	○	○	×
Z AREA (f-7)	×	○	×	×	×	×
D2B4 (a-8)	×	○	○	×	×	×
C3C0 (d-8)	×	○	○	○	×	○
D2B5 (d-7)	×	○	○	○	×	○
R2M7 (f-7)	×	0Ω	←	←	×	1K
C2K1 (f-7)	×	×	×	×	×	○
R3B4 (e-9)	0Ω	×	×	×	0Ω	×
X AREA (g-3)	LPSS/N̄	←	←	←	←	←
C2J9 (c-8)	×	×	○	○	×	×

(MC) ⚠PCB-MAIN


1
2
3
4
5
a
b
c
d
e
f
g
TO PCB-TIMER TK
MK
RESET
REMO
STBY5
KEY3
KEY2
KEY1
KEY0
GND
AC-2
AC-1
D9
D8
D7
D6
D5
D4
D3
D2
D1
D0
SI
SH
SG
SF
SE
SD
SC
SB
SA
TP5B
D5B2
Q5C3
2SC3052-F
R5C4 10K 1/10W
R5C5 1K 1/10W
R5C3 10K 1/10W
IC5A2
TA7291S
IN2
VSS
OUT 2
NC
GND
VS
OUT 1
VREF
IN1
R5J8 12K 1/10W
C5F4 Z-.047
D5B3
C5E3 Z-.022
C5A4 Z-.01
C5A5 Z-.01
LM-1
LM-2
ML
M
LOADING MOTOR
C5C0 25V 33μ
R5B1 10K 1/10W
R5B2 10K 1/10W
C5F0 Z-.1
C5D5 Z-.1 50V/25V
C5A2 6.3V 47μ
R5A8 10K 1/10W
Q5A1
Q5A2
Q5A3
R5A6 33K 1/10W
R5A5 470 1/10W
R5A7 680 1/10W
C5A0 5.5V Z-.047
C5E0 16V 22μ
C5A1 50V 10μ
R5B0 1K 1/10W
R5A9 220 1/10W
D5A2 HZ4C2
R5J1 56K 1/10W
IC5A0
O-BUZ
O-IP
SU-SENS
O-HFR/HSS
O-L
O-UL
O-IPRP
I-CUE
VEE
I-PWSV
VCC
TU-SENS
AVSS
VREF
O-REC2
IPRT/RIS
P1-P3
I-ES
I-SS
AFT-V /V-ENV
TR
EA-CS1
CG-CS
EA/CG-SCK
EA/CG-DATA
EA-SI
I2C-CLK
N.C.
O-HPLS
IO-I2C-DATA
O-PB
S-CLK/DAT
I-DAYN
CTL-GAIN
O-MUTE
O-C-MODE
O-PWV
PR-V-SYNC
EA-CS2
O-CANAL+
IO-ANT
I-VSYNC-L
I-HSYNC
I-CP-FG
SS-VSYNC
O-TU-V
HA-SW
CLK-ADJ/I-QSTOP
O-CROT
I-REMO
I-VSYNC
I-COM
I-CTL
I-DFF
RESET
XC IN
XC OUT
X IN
X OUT
VSS
O-EE
O-SP
O-SL
CP-FWD
KEY3
KEY2
KEY1
KEY0
LP-DRADJ
SP-DRADJ
DR-ON
CP-DAON
CP-ADJ3
CP-ADJ2
CP-ADJ1
CP-ADJ0
O-SS2
O-BS1
PO
O-VMUTE
Sa
Sb
Sc
Sd
Se
Sf
Sg
Sh
(-20~-27V)
(-20~-29V)
A
Q5B2
R5E1 F-240K 1/10W
R5E2 F-120K 1/10W
R5E3 F-62K 1/10W
R5E4 F-30K 1/10W
R5E5 100K 1/10W
D-OU
R5Y3 1K
R5X7 1M 1/10W
TP5J5
TP5A
D5A4 DAN202K
R5D1 10K
R5D0 10K 1/10W
R5D2 12K 1/10W
Q5B0
C-ROT
Q5A9
R5X0 0 1/10W
Q5B1
R5D3 18K 1/10W
TP5K0
C-MODE
C5K0 Z-.01
R5K7 1M 1/10W
Q5F0
2SA933S-R.S
/2SA1309A-R.S
SW5
R5K5 4.7K
R5K4 56K
D5D0
C5F5 50V 1μ
Q5F1
TP5Y
R5L0 0
C5D8 Z-.01
C
IC5A5
AT93C56 -10PC
CAT35C104P /AT93C66 -10PC
R5K3 33K 1/10W
TP5J7
VCC
NC
OPG
GND
CS2
SK
DI
DO
C5D4 16V 47μ
IC5A1
CAT35C104P /AT93C66 -10PC
R5A0 33K 1/10W
CS1
TP5J1
TP5J2
R5A1 4.7K 1/10W
R5A2 10K 1/10W
R5A3 33K 1/10W
TP5J4
TP5J3
TP5X
R5J4 10K
R5J5 39K 1/10W
C5E4 Z-.022
CP-M-V
G12
CP-FG1
F/R
STBY5
CP-OUT
P1-P3
PO
GND
REC-2
EE
A-MUTE
CONV-A-IN
A-IN
GND
CTL+
CTL-
GND
SW5
CUE
DTR-ENV-OUT
ME
ANT
SW5
STBY5
A-MUTE
TU-V
BS1
BS2
NR45
AFT-V
SW12
I2C-CLK
I2C-DATA
H-SYNC
SW5

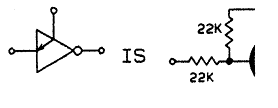
TO PCB-HEAD AMP GE

TO TUNER

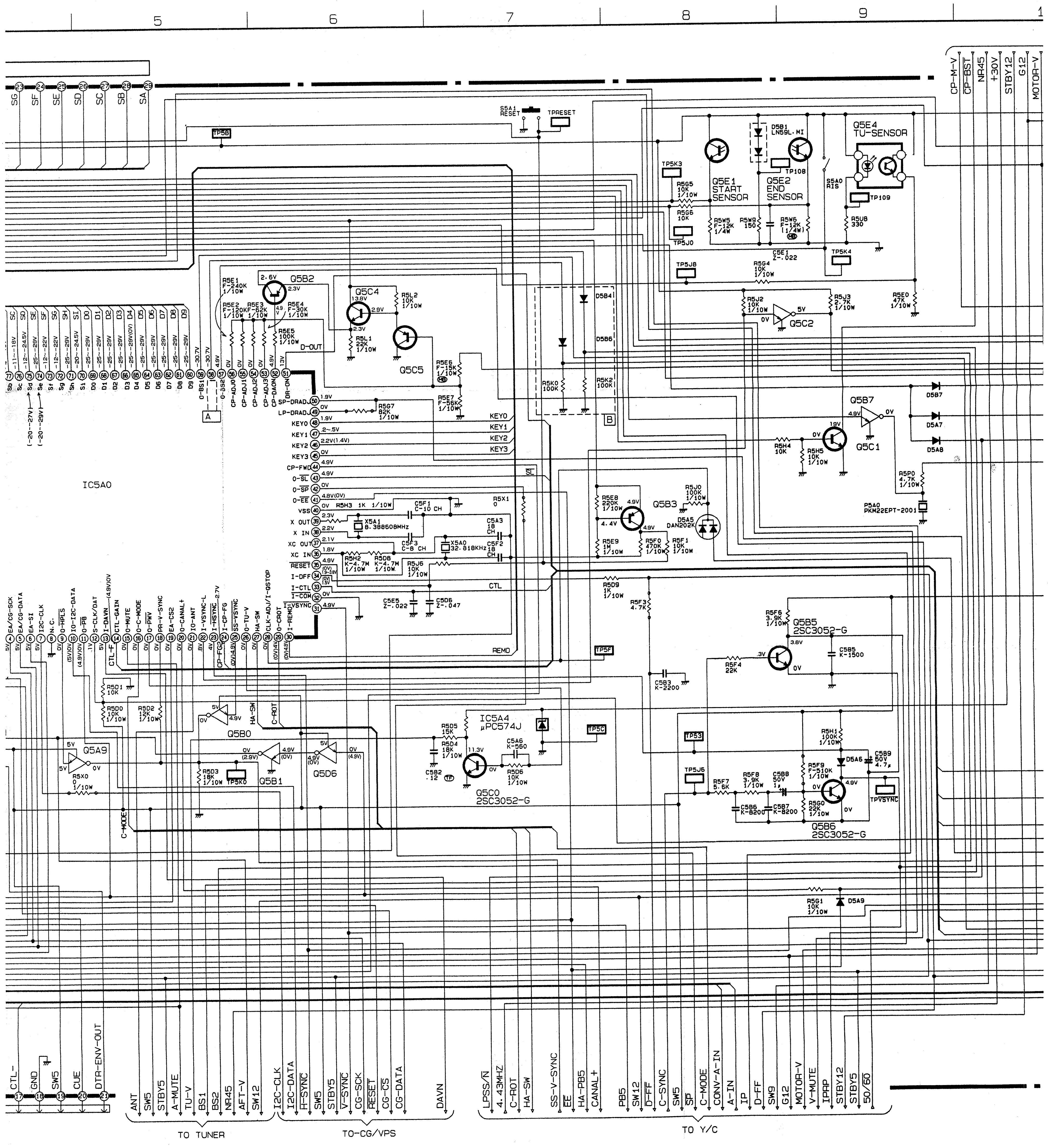
○:Employed ✕:Not employed

MODEL \ SYMBOL / ADDRESS	A AREA	R5F9	C AREA	R5G7	B AREA	R5X0	R5X1	IC5A0
ADDRESS	c-5	e-9	e-1	c-6	c-7	e-5	c-7	c-5
HS-521(Y)	O-N̄	✕	✕	✕	○	✕	✕	M38185ME-116FP
HS-520V(B)	O-LPSS	✕	✕	○	✕	✕	○	M38184MA-174FP
HS-521V(B)	O-LPSS	✕	○	○	✕	○	○	M38185ME-094FP
HS-521V(E)	O-N̄	✕	✕	✕	○	○	✕	M38185ME-116FP
HS-521V(G)	O-N̄	✕	○	✕	○	○	✕	M38185ME-093FP
HS-521V(IR)	O-LPSS	✕	○	○	○	○	○	M38185ME-094FP
HS-521V(A)	O-LPSS	○	✕	○	○	✕	○	M38184MA-175FP

All diodes are 1SS252/1S
All NPN transistors are
All PNP transistors are

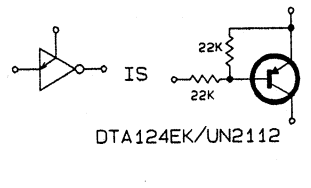


DTA124EK/UN21

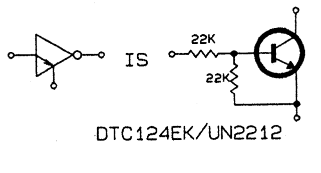

5
6
7
8
9
1
SG
SF
SE
SD
SC
SB
SA
23
24
25
26
27
28
29
TP58
S5A1 RESET
TPRESET
CP-M-V
CP-BST
NR45
+30V
STBY12
G12
MOTOR-V
Q5E1 START SENSOR
Q5E2 END SENSOR
D5B1 LN59L.MI
TP108
Q5E4 TU-SENSOR
S5A0 RIS
TP109
TP5K3
R5G5 10K 1/10W
R5G6 10K
TP5J0
R5W5 F-12K 1/4W
R5W9 150
R5W6 F-12K (1/4W)
R5U8 330
C5E1 Z-.022
TP5K4
TP5J8
R5G4 10K 1/10W
R5E0 47K 1/10W
R5J2 10K 1/10W
R5J3 2.7K 1/10W
Q5C2
5V
0V
D5B4
D5B6
R5K0 100K
R5K2 100K
B
Q5B2
2.6V
2.3V
R5E1 F-240K 1/10W
R5E2 F-120K 1/10W
R5E3 F-62K 1/10W
R5E4 F-30K 1/10W
R5E5 100K 1/10W
Q5C4
13.8V
2.9V
R5L2 10K 1/10W
R5L1 22K 1/10W
Q5C5
D-OUT
R5E6 F-15K 1/10W
R5E7 F-56K 1/10W
R5G7 82K 1/10W
SC
SD
SE
SF
SG
SH
SI
D0
D1
D2
D3
D4
D5
D6
D7
D8
D9
-11~-18V
-12~-24.5V
-25~-29V
-12~-22V
-12~-22V
-25~-29V
-20~-24.5V
-25~-29V
-25~-29V
-25~-29V
-25~-29V(0V)
-25~-29V
-25~-29V
-25~-29V
-25~-29V
-25~-29V
-30.7V
-30.7V
Sb
Sc
Sd
Se
Sf
Sg
Sh
Si
(-20~-27V)
(-20~-29V)
O-BS1
O-BS2
A
CP-ADJ0
CP-ADJ1
CP-ADJ2
CP-ADJ3
CP-DAON
DR-ON
SP-DRADJ
LP-DRADJ
KEY0
KEY1
KEY2
KEY3
CP-FWD
O-SL
O-SP
O-EE
VSS
X OUT
X IN
XC OUT
XC IN
RESET
I-DFF
I-CTL
I-COM
I-VSYNC
.2~.5V
2.2V(1.4V)
4.8V(0V)
R5H3 1K 1/10W
C5F1 C-10 CH
X5A1 8.388608MHz
C5F3 C-8 CH
X5A0 32.818KHz
C5A3 18 CH
C5F2 18 CH
R5H2 K-4.7M 1/10W
R5D8 K-4.7M 1/10W
R5J6 10K 1/10W
C5E5 Z-.022
C5D6 Z-.047
R5X1 0
SL
CTL
REMO
IC5A0
EA/CG-SCK
EA/CG-DATA
EA-SI
I2C-CLK
N.C.
O-HPLS
IO-I2C-DATA
O-PB
S-CLK/DAT
I-DAVN
CTL-GAIN
O-MUTE
O-C-MODE
O-PWV
PR-V-SYNC
EA-CS2
O-CANAL+
IO-ANT
I-VSYNC-L
I-HSYNC
I-CP-FG
SS-VSYNC
O-TU-V
HA-SW
CLK-ADJ/I-QSTOP
O-CROT
I-REMO
CTL-F
CP-FG2
R5D1 10K
R5D0 10K 1/10W
R5D2 12K 1/10W
Q5A9
R5X0 0 1/10W
C-MODE
Q5B0
Q5B1
Q5D6
R5D3 18K 1/10W
TP5K0
HA-SW
C-ROT
Q5B3
R5E8 220K 1/10W
R5E9 1M 1/10W
R5F0 470K 1/10W
R5F1 10K 1/10W
R5J0 100K 1/10W
D5A5 DAN202K
Q5B7
Q5C1
R5H4 10K
R5H5 10K 1/10W
D5B7
D5A7
D5A8
R5P0 4.7K 1/10W
P5A0 PKM22EPT-2001
R5D9 1K 1/10W
R5F3 4.7K
C5B3 K-2200
TP5F
Q5B5 2SC3052-G
R5F6 3.9K 1/10W
R5F4 22K
C5B5 K-1500
IC5A4 μPC574J
TP5C
R5D5 15K
R5D4 18K 1/10W
C5B2 .12
C5A6 K-560
R5D6 10K 1/10W
Q5C0 2SC3052-G
TP53
TP5J6
R5F7 5.6K
R5F8 3.9K 1/10W
C5B8 50V 1μ
C5B6 K-8200
C5B7 K-8200
R5F9 F-510K 1/10W
R5G0 22K 1/10W
R5H1 100K 1/10W
D5A6
C5B9 50V 4.7μ
TPVSYNC
Q5B6 2SC3052-G
R5G1 10K 1/10W
D5A9
CTL-
GND
SW5
CUE
DTR-ENV-OUT
17
18
19
20
21
ANT
SW5
STBY5
A-MUTE
TU-V
BS1
BS2
NR45
AFT-V
SW12
TO TUNER
I2C-CLK
I2C-DATA
H-SYNC
SW5
STBY5
V-SYNC
CG-SCK
RESET
CG-CS
CG-DATA
DAVN
TO-CG/VPS
LPSS/N
4.43MHZ
C-ROT
HA-SW
SS-V-SYNC
EE
HA-PB5
CANAL+
PB5
SW12
D-FF
C-SYNC
SW5
SP
C-MODE
CONV-A-IN
A-IN
IP
D-FF
SW9
G12
MOTOR-V
V-MUTE
IPRP
STBY12
STBY5
50/60
TO Y/C

A	R5X0	R5X1	IC5A0
	e-5	c-7	c-5
	×	×	M38185ME-116FP
	×	○	M38184MA-174FP
	○	○	M38185ME-094FP
	○	×	M38185ME-116FP
	○	×	M38185ME-093FP
	○	○	M38185ME-094FP
	×	○	M38184MA-175FP

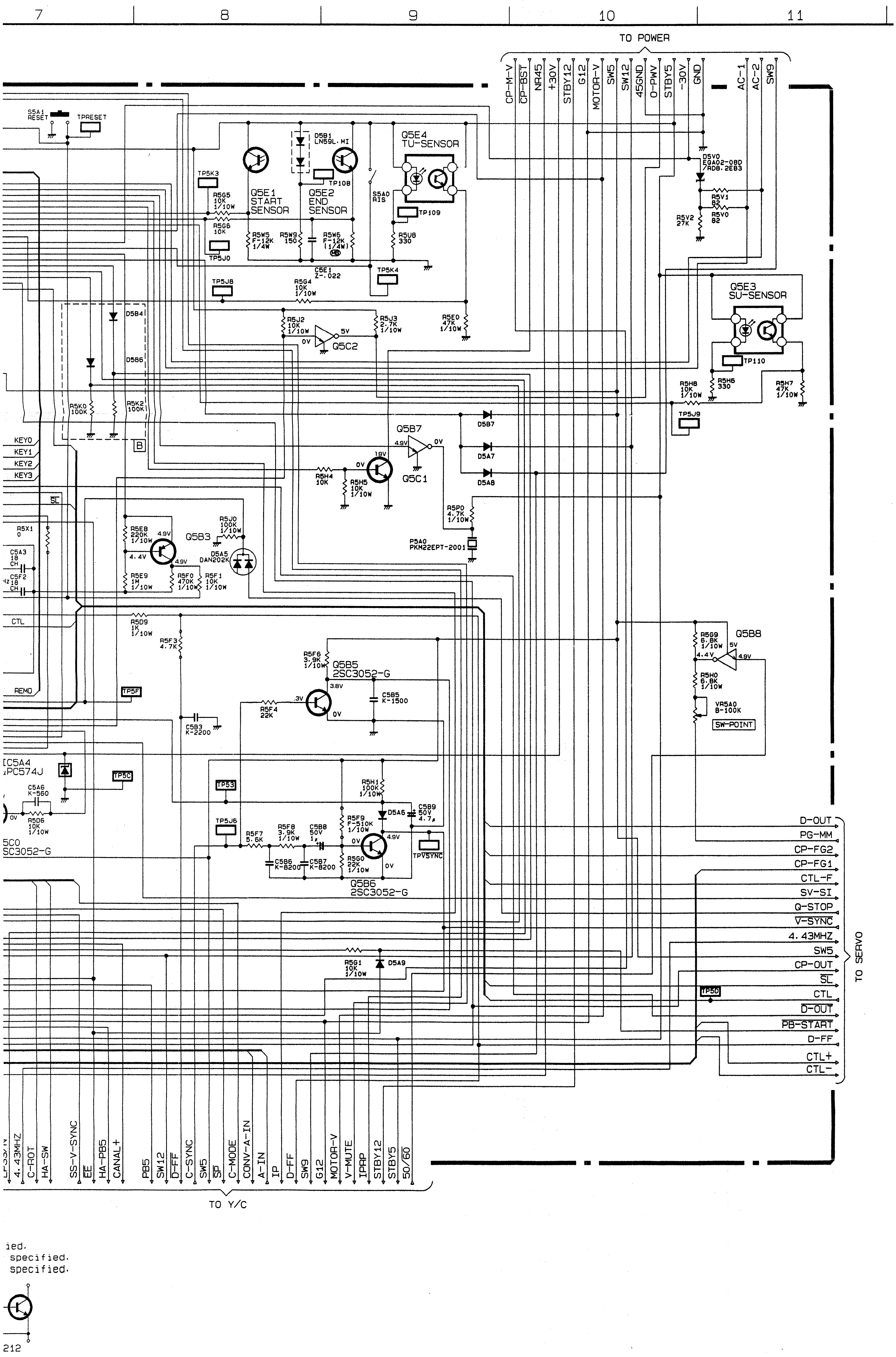
All diodes are 1SS252/1SS131 unless otherwise specified.
All NPN transistors are 2SC3052-E.F unless otherwise specified.
All PNP transistors are 2SA1235-E.F unless otherwise specified.

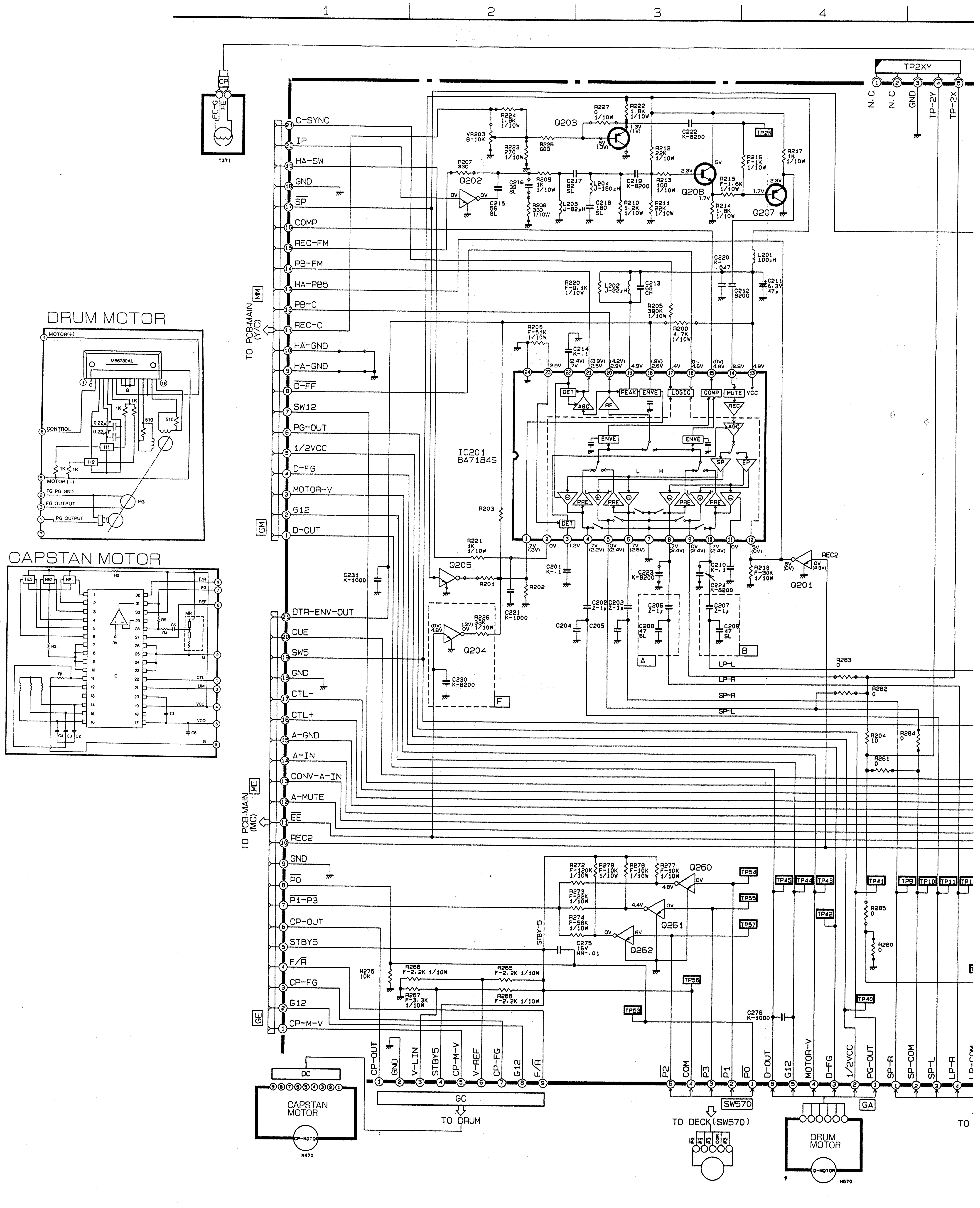


DTA124EK/UN2112



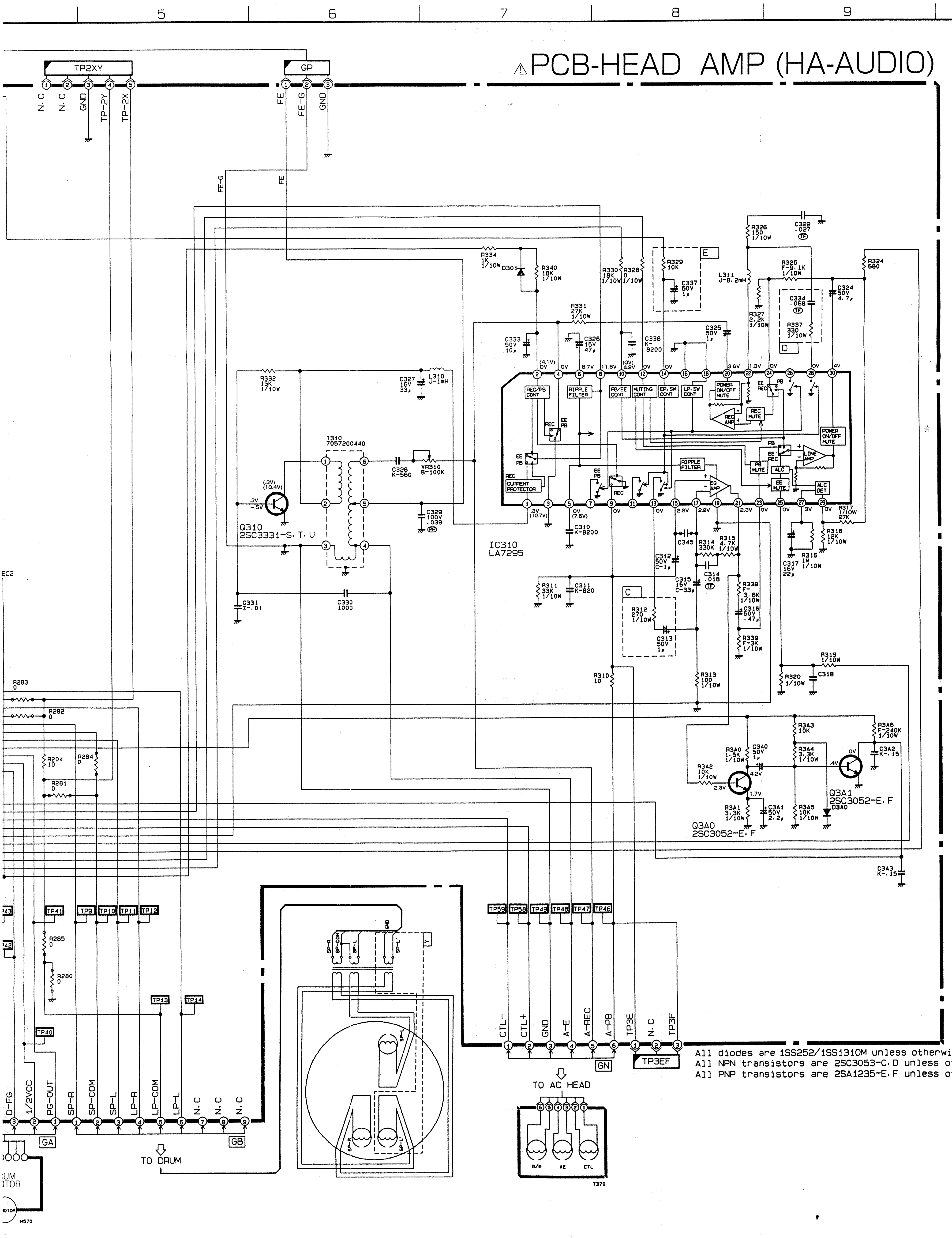
DTC124EK/UN2212


7
8
9
10
11
TO POWER
CP-M-V
CP-BST
NR45
+30V
STBY12
G12
MOTOR-V
SW5
SW12
45GND
O-PWV
STBY5
-30V
GND
AC-1
AC-2
SW9
S5A1 RESET
TPRESET
D5B1 LN59L.MI
Q5E4 TU-SENSOR
TP5K3
Q5E1 START SENSOR
Q5E2 END SENSOR
TP108
S5A0 RIS
TP109
R5G5 10K 1/10W
R5G6 10K
R5W5 F-12K 1/4W
R5W9 150
R5W6 F-12K (1/4W)
R5U8 330
TP5J0
C6E1 Z-.022
TP5K4
D5V0 EGA02-08D /RD8.2EB3
R5V1 82
R5V0 82
R5V2 27K
TP5J8
R5G4 10K 1/10W
Q5E3 SU-SENSOR
D5B4
R5J2 10K 1/10W
R5J3 2.7K 1/10W
5V
0V
Q5C2
R5E0 47K 1/10W
TP110
D5B6
R5H8 10K 1/10W
R5H6 330
R5H7 47K 1/10W
R5K0 100K
R5K2 100K
TP5J9
D5B7
KEY0
KEY1
KEY2
KEY3
B
Q5B7
4.9V
18V
D5A7
R5H4 10K
R5H5 10K 1/10W
Q5C1
D5A8
SL
R5P0 4.7K 1/10W
R5X1 0
R5E8 220K 1/10W
Q5B3
R5J0 100K 1/10W
P5A0 PKM22EPT-2001
C5A3 18 CH
4.4V
D5A5 DAN202K
C5F2 18 CH
R5E9 1M 1/10W
R5F0 470K 1/10W
R5F1 10K 1/10W
CTL
R5D9 1K 1/10W
R5G9 6.8K 1/10W
Q5B8
R5F3 4.7K
R5F6 3.9K 1/10W
Q5B5 2SC3052-G
3.8V
3V
C5B5 K-1500
R5H0 6.8K 1/10W
REMO
TP5F
R5F4 22K
VR5A0 B-100K
SW-POINT
C5B3 K-2200
IC5A4 μPC574J
TP5C
TP53
C5A6 K-560
R5H1 100K 1/10W
C5B9 50V 4.7μ
D5A6
R5D6 10K 1/10W
TP5J6
R5F7 5.6K
R5F8 3.9K 1/10W
C5B8 50V 1μ
R5F9 F-510K 1/10W
TPVSYNC
Q5C0 2SC3052-G
C5B6 K-8200
C5B7 K-8200
R5G0 22K 1/10W
Q5B6 2SC3052-G
D-OUT
PG-MM
CP-FG2
CP-FG1
CTL-F
SV-SI
Q-STOP
V-SYNC
4.43MHZ
SW5
CP-OUT
SL
CTL
D-OUT
PB-START
D-FF
CTL+
CTL-
TO SERVO
R5G1 10K 1/10W
D5A9
TP5D
4.43MHZ
C-ROT
HA-SW
SS-V-SYNC
EE
HA-PB5
CANAL+
PB5
SW12
D-FF
C-SYNC
SW5
SP
C-MODE
CONV-A-IN
A-IN
IP
D-FF
SW9
G12
MOTOR-V
V-MUTE
IPRP
STBY12
STBY5
50/60
TO Y/C
ied.
specified.
specified.
212


1
2
3
4
TP2XY
N.C
N.C
GND
TP-2Y
TP-2X
FE-G
FE
OP
T371
C-SYNC
IP
HA-SW
GND
SP
COMP
REC-FM
PB-FM
HA-PB5
PB-C
REC-C
HA-GND
HA-GND
D-FF
SW12
PG-OUT
1/2VCC
D-FG
MOTOR-V
G12
D-OUT
TO PCB-MAIN (Y/C)
MM
GM
DTR-ENV-OUT
CUE
SW5
GND
CTL-
CTL+
A-GND
A-IN
CONV-A-IN
A-MUTE
EE
REC2
GND
P0
P1-P3
CP-OUT
STBY5
F/R
CP-FG
G12
CP-M-V
TO PCB-MAIN (MC)
ME
GE
DRUM MOTOR
MOTOR(+)
M56732AL
CONTROL
MOTOR (-)
FG PG GND
FG OUTPUT
PG OUTPUT
FG
H1
H2
CAPSTAN MOTOR
HE3
HE2
HE1
IC
F/R
FG
REF
CTL
LIM
VCC
VCO
MR
Q203
Q202
Q208
Q207
Q205
Q204
Q201
Q260
Q261
Q262
IC201
BA7184S
DET
AGC
RF
PEAK
ENVE
LOGIC
COMP
MUTE
REC
VCC
SP
EP
PRE
L
H
TP2N
TP54
TP55
TP57
TP56
TP53
TP45
TP44
TP43
TP42
TP41
TP40
TP9
TP10
TP11
R227 0 1/10W
R222 1.8K 1/10W
R224 1.8K 1/10W
VR203 B-10K
R223 270 1/10W
R225 680
R207 330
C222 K-8200
R212 22K 1/10W
R216 F-1K 1/10W
R217 1K 1/10W
C216 33 SL
R209 1K 1/10W
C217 82 SL
L204 J-150μH
C219 K-8200
R213 100 1/10W
R215 F-1.6K 1/10W
C215 56 SL
R208 330 1/10W
L203 J-82μH
C218 180 SL
R210 1.2K 1/10W
R211 22K 1/10W
R214 1.8K 1/10W
C220 K-.047
L201 100μH
C212 8200
C211 6.3V 47μ
R220 F-9.1K 1/10W
L202 J-22μH
C213 68 CH
R205 390K 1/10W
R200 4.7K 1/10W
R206 F-51K 1/10W
C214 K-.1
R203
R221 1K 1/10W
C231 K-1000
R201
R202
C201 K-.1
C221 K-1000
C223 K-8200
C210 K-.1
C224 K-8200
R218 F-30K 1/10W
REC2
R226 33K 1/10W
C230 K-8200
C204
C205
C202 Z-1μ
C203 Z-1μ
C206 Z-1μ
C208 47 SL
C207 Z-1μ
C209 47 SL
A
B
F
LP-L
LP-R
SP-R
SP-L
R283 0
R282 0
R204 10
R284 0
R281 0
R272 F-120K 1/10W
R279 F-10K 1/10W
R278 F-10K 1/10W
R277 F-10K 1/10W
R273 F-22K 1/10W
R274 F-56K 1/10W
C275 16V MN-.01
STBY-5
R285 0
R280 0
R275 10K
R268 F-2.2K 1/10W
R265 F-2.2K 1/10W
R267 F-3.3K 1/10W
R266 F-2.2K 1/10W
C276 K-1000
CP-OUT
GND
V-LIN
STBY5
CP-M-V
V-REF
CP-FG
G12
F/R
DC
GC
CAPSTAN MOTOR
CP-MOTOR
M470
TO DRUM
P2
COM
P3
P1
P0
SW570
TO DECK (SW570)
D-OUT
G12
MOTOR-V
D-FG
1/2VCC
PG-OUT
SP-R
SP-COM
SP-L
LP-R
GA
DRUM MOTOR
D-MOTOR
M570
TO

⚠PCB-HEAD AMP (HA-AUDIO)

←: Me
○: Em

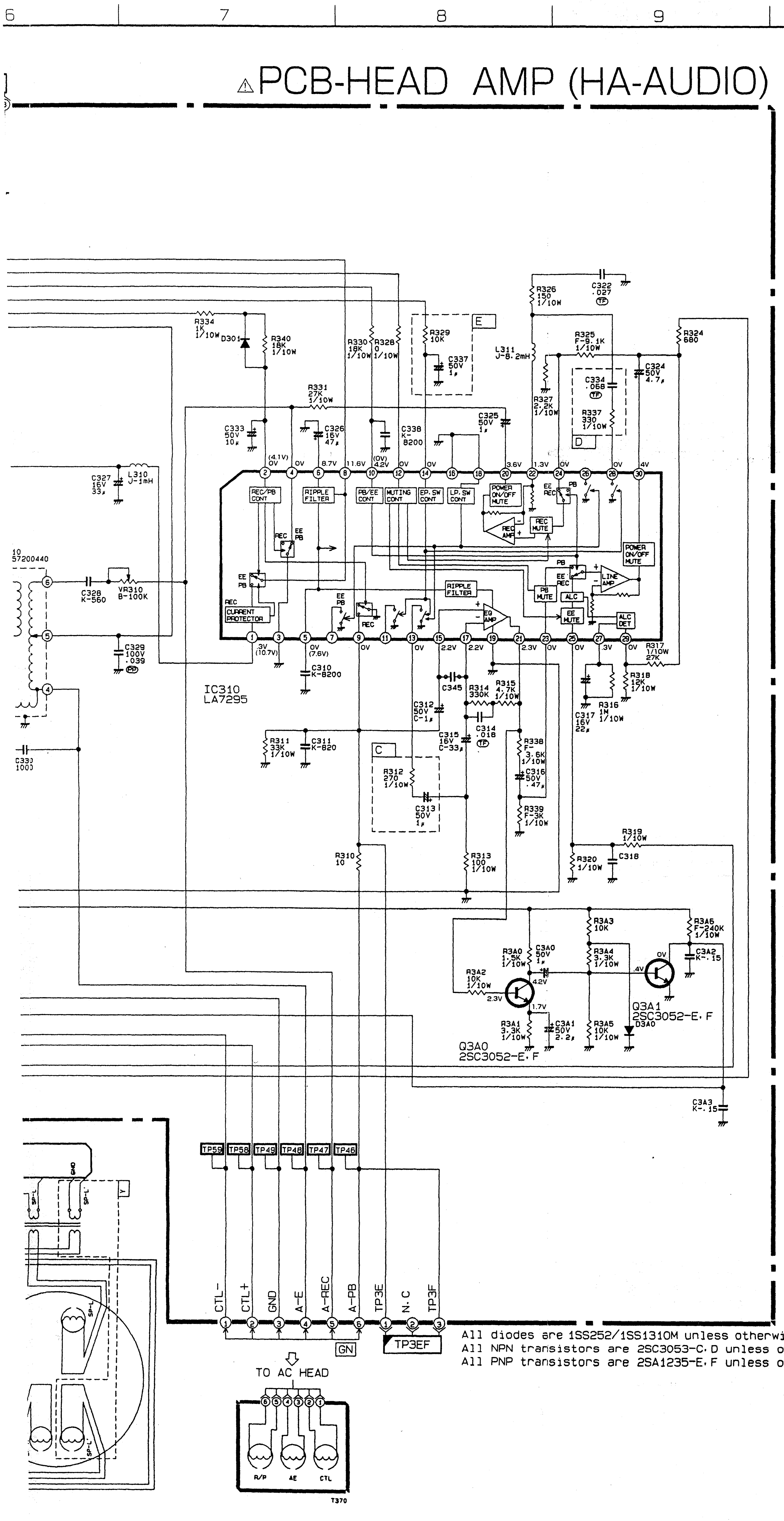


5
6
7
8
9
TP2XY
N.C
N.C
GND
TP-2Y
TP-2X
GP
FE
FE-G
GND
IC310
LA7295
REC/PB CONT
RIPPLE FILTER
PB/EE CONT
MUTING CONT
EP.SW CONT
LP.SW CONT
POWER ON/OFF MUTE
REC AMP
REC MUTE
LINE AMP
PB MUTE
ALC
EE MUTE
ALC DET
EQ AMP
CURRENT PROTECTOR
Q310
2SC3331-S.T.U
T310
7057200440
VR310
B-100K
L310
J-1mH
L311
J-8.2mH
Q3A0
2SC3052-E.F
Q3A1
2SC3052-E.F
D301
D3A0
TP41
TP9
TP10
TP11
TP12
TP13
TP14
TP40
TP59
TP58
TP49
TP48
TP47
TP46
D-FG
1/2VCC
PG-OUT
SP-R
SP-COM
SP-L
LP-R
LP-COM
LP-L
N.C
N.C
N.C
GA
GB
TO DRUM
CTL-
CTL+
GND
A-E
A-REC
A-PB
TP3E
N.C
TP3F
GN
TP3EF
TO AC HEAD
R/P
AE
CTL
T370
M570

All diodes are 1SS252/1SS1310M unless otherwise specifi
All NPN transistors are 2SC3053-C.D unless otherwise s
All PNP transistors are 2SA1235-E.F unless otherwise s

SYMBOL
R317
R320
C318
R319
R283
R284
R285
C345
A AREA
B AREA
C AREA
D AREA
E AREA
F AREA
Y AREA
R223
R224
R227
C204
C205
R201
R202
R203
R200
Q205

⚠PCB-HEAD AMP (HA-AUDIO)

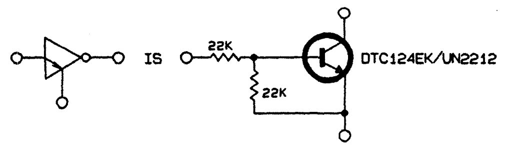

6
7
8
9
10
11
a
b
c
d
e
f
IC310
LA7295
REC/PB CONT
RIPPLE FILTER
PB/EE CONT
MUTING CONT
EP. SW CONT
LP. SW CONT
POWER ON/OFF MUTE
REC AMP
REC MUTE
LINE AMP
PB MUTE
ALC
EE MUTE
ALC DET
EQ AMP
REC CURRENT PROTECTOR
Q3A0
2SC3052-E. F
Q3A1
2SC3052-E. F
D3A0
D301
VR310
B-100K
L310
J-1mH
L311
J-8.2mH
R310 10
R311 33K 1/10W
R312 270 1/10W
R313 100 1/10W
R314 330K
R315 4.7K 1/10W
R316 1M 1/10W
R317 1/10W 27K
R318 12K 1/10W
R319 1/10W
R320 1/10W
R324 680
R325 F-9.1K 1/10W
R326 150 1/10W
R327 2.2K 1/10W
R328 0
R329 10K
R330 18K 1/10W
R331 27K 1/10W
R334 1K 1/10W
R337 330 1/10W
R338 F-3.6K 1/10W
R339 F-3K 1/10W
R340 18K 1/10W
R3A0 1.5K 1/10W
R3A1 3.3K 1/10W
R3A2 10K 1/10W
R3A3 10K
R3A4 3.3K 1/10W
R3A5 10K 1/10W
R3A6 F-240K 1/10W
C310 K-8200
C311 K-820
C312 50V C-1μ
C313 50V 1μ
C314 .018
C315 16V C-33μ
C316 50V .47μ
C317 16V 22μ
C318
C322 .027
C324 50V 4.7μ
C325 50V 1μ
C326 16V 47μ
C327 16V 33μ
C328 K-560
C329 100V .039
C333 50V 10μ
C334 .068
C337 50V 1μ
C338 K-8200
C345
C3A0 50V 1μ
C3A1 50V 2.2μ
C3A2 K-.15
C3A3 K-.15
C33 1000
10 57200440
C
D
E
Y
TP59
TP58
TP49
TP48
TP47
TP46
CTL-
CTL+
GND
A-E
A-REC
A-PB
TP3E
N.C
TP3F
GN
TP3EF
TO AC HEAD
R/P
AE
CTL
T370
SP-L
GND

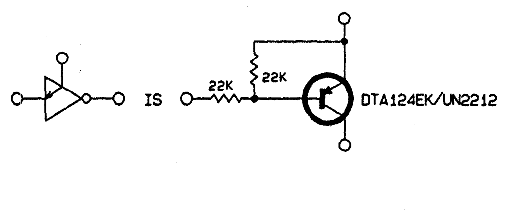
All diodes are 1SS252/1SS1310M unless otherwise specified.
All NPN transistors are 2SC3053-C. D unless otherwise specified.
All PNP transistors are 2SA1235-E. F unless otherwise specified.

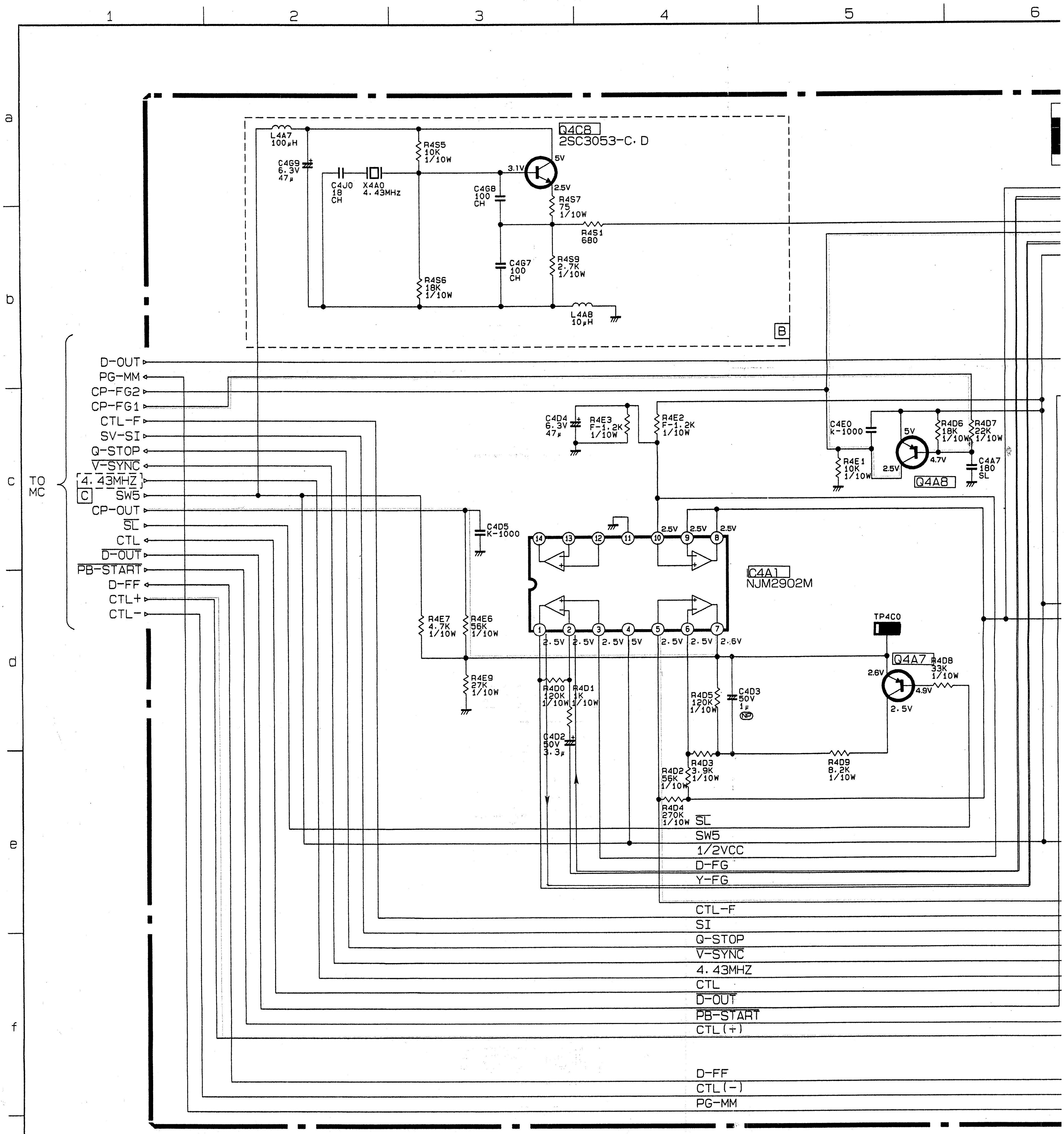
←: Means same as left side
○: Employed ✕: Not employed

(B): Means HS-520V(B) and HS-521V(B)

SYMBOL	ADDRESS	MODEL (B)/(Y)(IR)	(E)/(G)	(A)
R317	d-9	27K	←	←
R320	d-9	820	←	←
C318	e-9	5600	←	←
R319	d-9	5.6k	←	←
R283	e-4	✕	✕	✕
R284	e-5	✕	✕	✕
R285	f-4	✕	✕	✕
C345	d-8	k-1000	←	✕
A AREA	d-3	✕	✕	✕
B AREA	d-3	✕	✕	✕
C AREA	d-8	○	✕	○
D AREA	b-9	○	✕	○
E AREA	b-8	○	✕	○
F AREA	d-2	✕	○	✕
Y AREA	f-7	✕	✕	✕
R223	a-3	✕	✕	✕
R224	a-3	✕	✕	✕
R227	a-3	✕	✕	✕
C204	d-3	56 SL	39 SL	56 SL
C205	d-3	56 SL	39 SL	56 SL
R201	d-2	56K	✕	56K
R202	d-2	10K 1/10W	15K 1/10W	10K 1/10W
R203	d-2	33K 1/10W	27K 1/10W	33K 1/10W
R200	b-3	✕	○	✕
Q205	d-2	○	✕	○


IS
22K
22K
DTC124EK/UN2212


IS
22K
22K
DTA124EK/UN2212

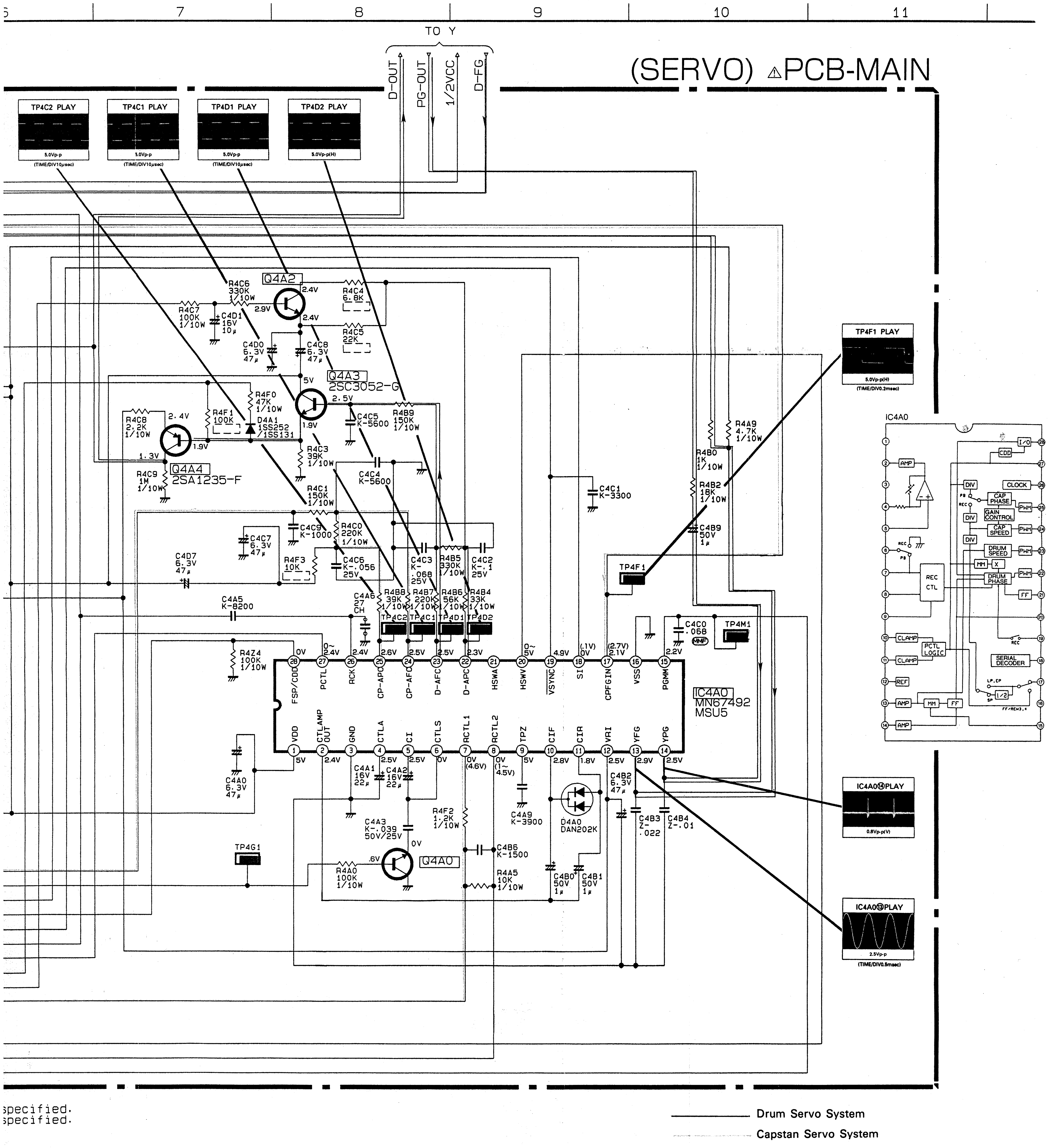

1
2
3
4
5
6
a
b
c
d
e
f
Q4C8
2SC3053-C·D
L4A7 100μH
C4G9 6.3V 47μ
C4J0 18 CH
X4A0 4.43MHz
R4S5 10K 1/10W
R4S6 18K 1/10W
C4G8 100 CH
C4G7 100 CH
R4S7 75 1/10W
R4S9 2.7K 1/10W
R4S1 680
L4A8 10μH
3.1V
5V
2.5V
B
TO MC
C
D-OUT
PG-MM
CP-FG2
CP-FG1
CTL-F
SV-SI
Q-STOP
V-SYNC
4.43MHZ
SW5
CP-OUT
SL
CTL
D-OUT
PB-START
D-FF
CTL+
CTL−
C4D4 6.3V 47μ
R4E3 F-1.2K 1/10W
R4E2 F-1.2K 1/10W
C4E0 K-1000
R4D6 18K 1/10W
R4D7 22K 1/10W
R4E1 10K 1/10W
C4A7 180 SL
Q4A8
4.7V
C4D5 K-1000
IC4A1
NJM2902M
R4E7 4.7K 1/10W
R4E6 56K 1/10W
R4E9 27K 1/10W
R4D0 120K 1/10W
R4D1 1K 1/10W
C4D2 50V 3.3μ
R4D5 120K 1/10W
C4D3 50V 1μ NP
TP4C0
Q4A7
R4D8 33K 1/10W
2.6V
4.9V
R4D3 3.9K 1/10W
R4D2 56K 1/10W
R4D9 8.2K 1/10W
R4D4 270K 1/10W
SL
SW5
1/2VCC
D-FG
Y-FG
CTL-F
SI
Q-STOP
V-SYNC
4.43MHZ
CTL
D-OUT
PB-START
CTL(+)
D-FF
CTL(−)
PG-MM

O : Employed
X : Not employed

All NPN transistors are 2SC3052-E·F unless otherwise spec
All PNP transistors are 2SA1235-E·F unless otherwise spec

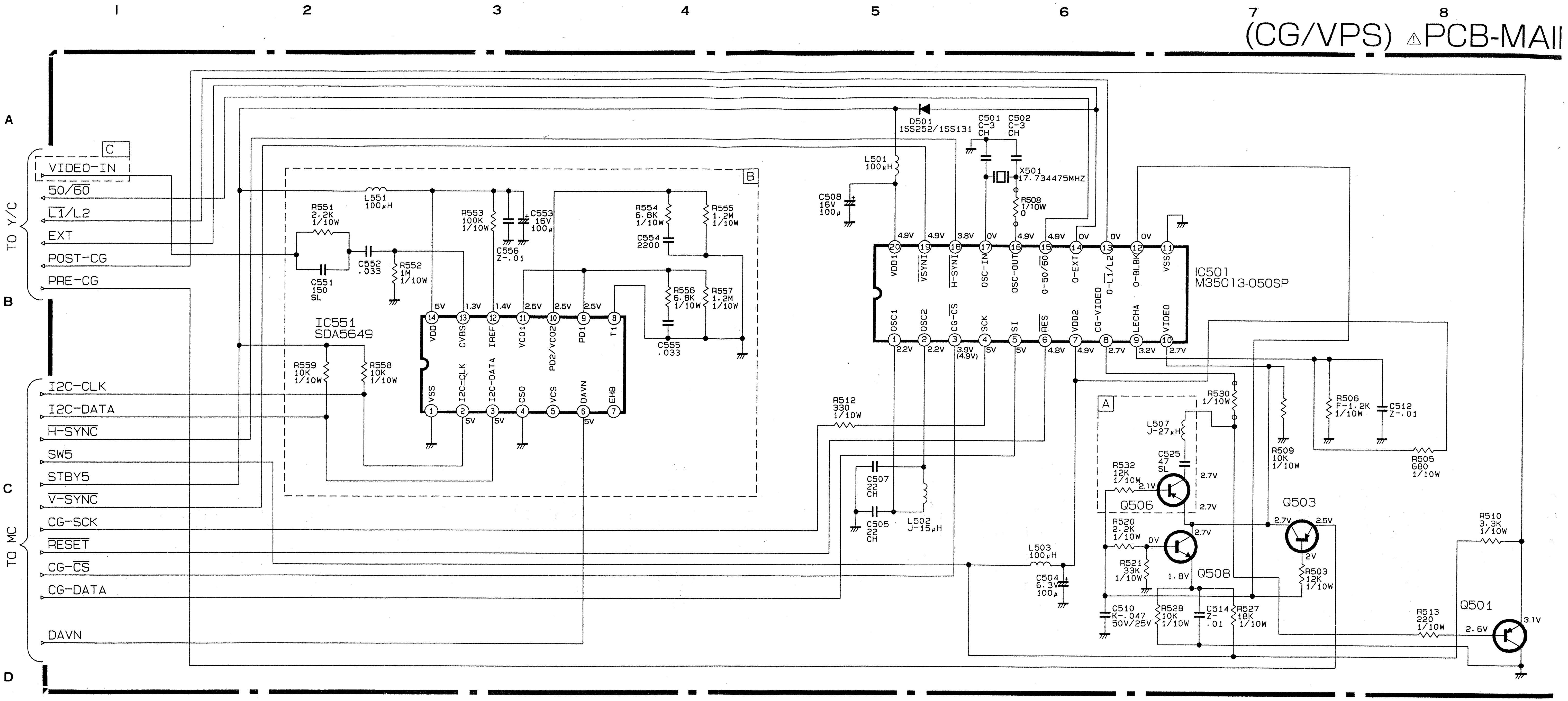
MODEL / SYMBOL	C4A6	B AREA	C AREA	R4C4	R4C5	R4F1	R4F3
HS-520V(B),HS-521(Y),HS-521V(B)/(E)/(IR)	○	○	X	1/4or1/6W	1/4or1/6W	1/10W	1/4or1/6W
HS-521V(G)	○	○	X	1/4or1/6W	1/4or1/6W	1/10W	1/4or1/6W
HS-521V(A)	X	X	○	1/4or1/6W	1/4or1/6W	1/10W	1/4or1/6W

(SERVO) △PCB-MAIN

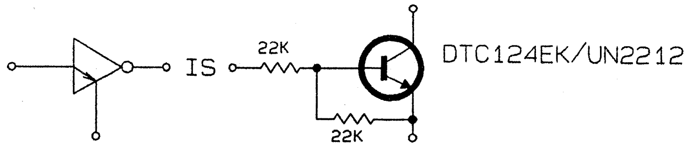

7
8
9
10
11
TO Y
D-OUT
PG-OUT
1/2VCC
D-FG
TP4C2 PLAY
5.0Vp-p
(TIME/DIV10μsec)
TP4C1 PLAY
5.0Vp-p
(TIME/DIV10μsec)
TP4D1 PLAY
5.0Vp-p
(TIME/DIV10μsec)
TP4D2 PLAY
5.0Vp-p(H)
TP4F1 PLAY
5.0Vp-p(H)
(TIME/DIV0.2msec)
IC4A0⑭PLAY
0.8Vp-p(V)
IC4A0⑬PLAY
2.5Vp-p
(TIME/DIV0.5msec)
Q4A2
Q4A3
2SC3052-G
Q4A4
2SA1235-F
Q4A0
IC4A0
MN67492
MSU5
D4A1
1SS252
/1SS131
D4A0
DAN202K
R4C6 330K 1/10W
R4C7 100K 1/10W
C4D1 16V 10μ
C4D0 6.3V 47μ
C4C8 6.3V 47μ
R4C4 6.8K
R4C5 22K
R4F0 47K 1/10W
R4F1 100K
R4C8 2.2K 1/10W
R4C9 1M 1/10W
R4C3 39K 1/10W
R4B9 150K 1/10W
C4C5 K-5600
C4C4 K-5600
R4C1 150K 1/10W
C4C9 K-1000
R4C0 220K 1/10W
C4C7 6.3V 47μ
C4D7 6.3V 47μ
R4F3 10K
C4C6 K-.056 25V
C4C3 K- .068 25V
R4B5 330K 1/10W
C4C2 K-.1 25V
C4A6 27 CH
R4B8 39K 1/10W
R4B7 220K 1/10W
R4B6 56K 1/10W
R4B4 33K 1/10W
TP4C2
TP4C1
TP4D1
TP4D2
C4A5 K-8200
R4Z4 100K 1/10W
C4C1 K-3300
R4B0 1K 1/10W
R4A9 4.7K 1/10W
R4B2 18K 1/10W
C4B9 50V 1μ
TP4F1
C4C0 .068
TP4M1
FSP/CDD
PCTL
RCK
CP-APC
CP-AFC
D-AFC
D-APC
HSWA
HSWV
VSYNC
SI
CPFGIN
VSS
PGMM
VDD
CTLAMP OUT
GND
CTLA
CI
CTLS
RCTL1
RCTL2
TPZ
CIF
CIR
VRI
YFG
YPG
0V
0~ 2.4V
2.4V
2.6V
2.5V
2.5V
2.3V
0~ 5V
4.9V
(.1V) 0V
(2.7V) 2.1V
2.2V
5V
2.4V
2.5V
2.5V
0V
0V (4.6V)
0V (1~ 4.5V)
5V
2.8V
1.8V
2.5V
2.9V
2.5V
C4A0 6.3V 47μ
C4A1 16V 22μ
C4A2 16V 22μ
C4A3 K-.039 50V/25V
R4F2 1.2K 1/10W
C4A9 K-3900
C4B2 6.3V 47μ
C4B3 Z- .022
C4B4 Z-.01
TP4G1
R4A0 100K 1/10W
.6V
0V
C4B6 K-1500
R4A5 10K 1/10W
C4B0 50V 1μ
C4B1 50V 1μ
2.4V
2.9V
5V
2.5V
1.9V
1.3V
AMP
CDD
I/O
CLOCK
DIV
CAP PHASE
GAIN CONTROL
CAP SPEED
DRUM SPEED
DRUM PHASE
PWM
REC CTL
MM
X
FF
CLAMP
PCTL LOGIC
SERIAL DECODER
REF
LP, EP
1/2
SP
FF/REW3,4
REC
PB

specified.
specified.

(CG/VPS) ⚠PCB-MAI

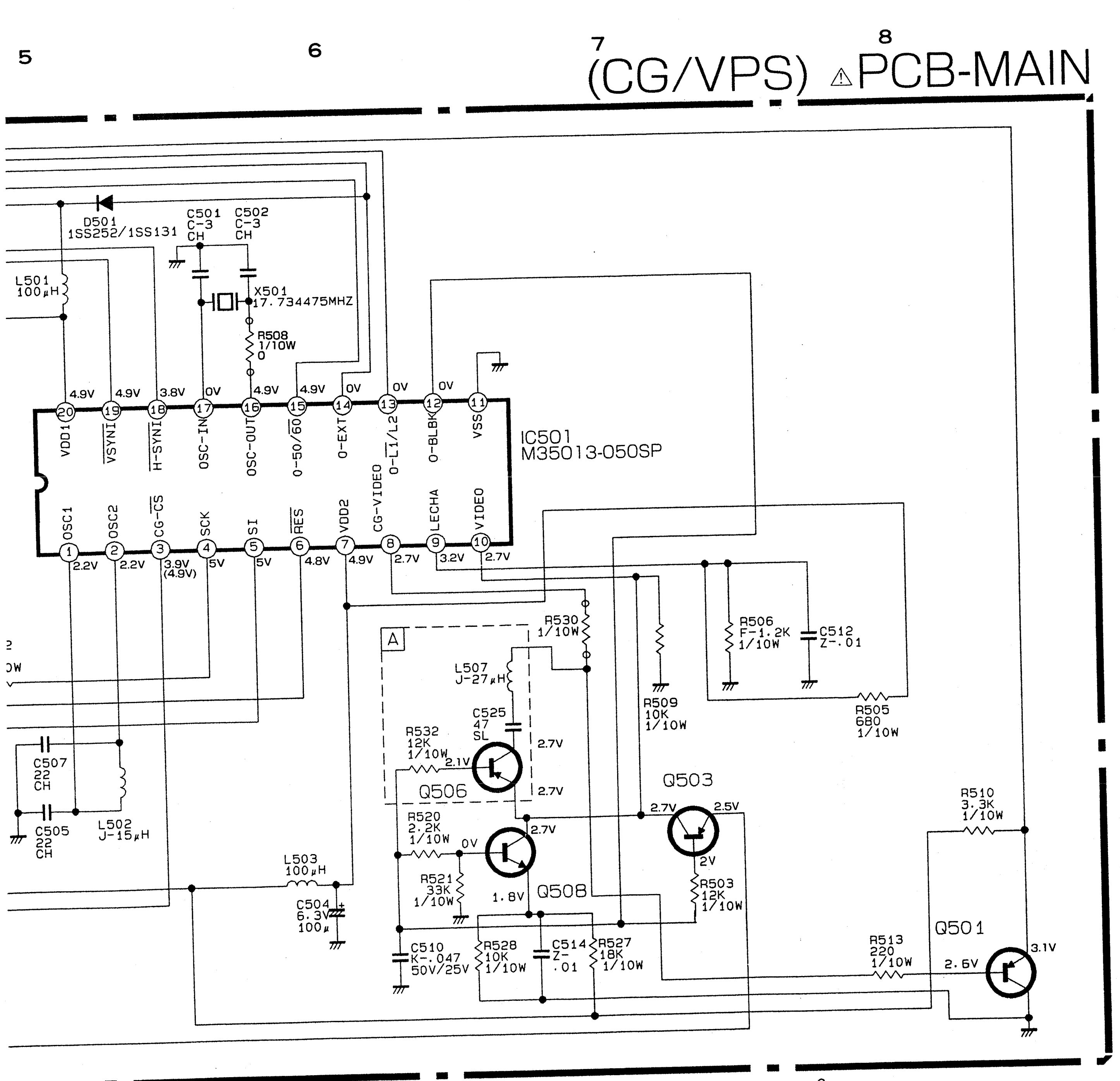

1
2
3
4
5
6
7
8
A
B
C
D
E
TO Y/C
VIDEO-IN
50/60
L1/L2
EXT
POST-CG
PRE-CG
TO MC
I2C-CLK
I2C-DATA
H-SYNC
SW5
STBY5
V-SYNC
CG-SCK
RESET
CG-CS
CG-DATA
DAVN
C
B
A
IC551
SDA5649
VDD
CVBS
IREF
VCO1
PD2/VCO2
PD1
T1
VSS
I2C-CLK
I2C-DATA
CS0
VCS
DAVN
EHB
R551 2.2K 1/10W
C551 150 SL
C552 .033
R552 1M 1/10W
L551 100μH
R553 100K 1/10W
C556 Z-.01
C553 16V 100μ
R554 6.8K 1/10W
C554 2200
R555 1.2M 1/10W
R556 6.8K 1/10W
R557 1.2M 1/10W
C555 .033
R559 10K 1/10W
R558 10K 1/10W
D501 1SS252/1SS131
L501 100μH
C508 16V 100μ
C501 C-3 CH
C502 C-3 CH
X501 17.734475MHZ
R508 1/10W 0
IC501
M35013-050SP
VDD1
VSYNI
H-SYNI
OSC-IN
OSC-OUT
O-50/60
O-EXT
O-L1/L2
O-BLBK
VSS
OSC1
OSC2
CG-CS
SCK
SI
RES
VDD2
CG-VIDEO
LECHA
VIDEO
R512 330 1/10W
C507 22 CH
C505 22 CH
L502 J-15μH
L503 100μH
C504 6.3V 100μ
R530 1/10W
L507 J-27μH
C525 47 SL
R532 12K 1/10W
Q506
R520 2.2K 1/10W
R521 33K 1/10W
Q508
C510 K-.047 50V/25V
R528 10K 1/10W
C514 Z-.01
R527 18K 1/10W
R509 10K 1/10W
Q503
R503 12K 1/10W
R506 F-1.2K 1/10W
C512 Z-.01
R505 680 1/10W
R510 3.3K 1/10W
R513 220 1/10W
Q501
4.9V
3.8V
0V
5V
1.3V
1.4V
2.5V
2.2V
3.9V (4.9V)
4.8V
2.7V
3.2V
2.1V
1.8V
2V
2.6V
3.1V

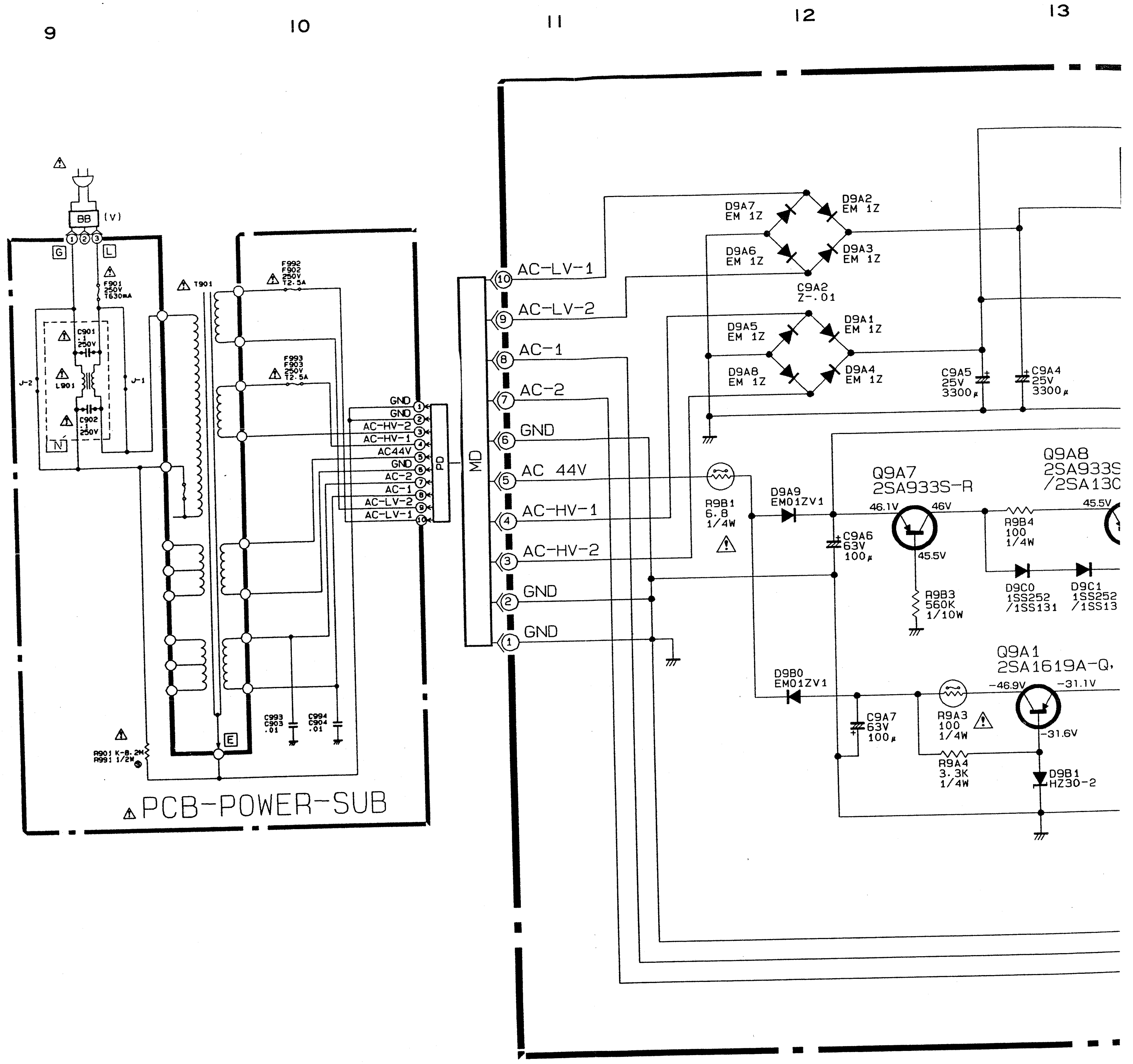
All NPN transistors are 2SC3052-E,F unless otherwise specified.
All PNP transistors are 2SA1235-E,F unless otherwise specified.

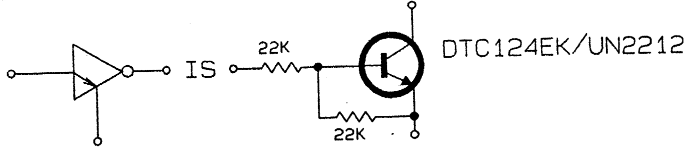

IS
22K
22K
DTC124EK/UN2212

○: Employed ×: Not employed

MODEL \ SYMBOL	A	B	C	R530
HS-521(Y)	○	×	×	390
HS-520V(B),HS-521V(A)/(IR)	×	×	×	0Ω
HS-521V(B)	×	○	○	0Ω
HS-521V(E)	○	○	○	390
HS-521V(G)	○	○	○	390


5
6
7
8
(CG/VPS) ⚠PCB-MAIN
IC501
M35013-050SP
VDD1
VSYNI
H-SYNI
OSC-IN
OSC-OUT
O-50/60
O-EXT
O-L1/L2
O-BLBK
VSS
OSC1
OSC2
CG-CS
SCK
SI
RES
VDD2
CG-VIDEO
LECHA
VIDEO
D501
1SS252/1SS131
C501 C-3 CH
C502 C-3 CH
X501 17.734475MHZ
R508 1/10W 0
L501 100μH
A
R530 1/10W
L507 J-27μH
C525 47 SL
R532 12K 1/10W
Q506
Q503
Q508
Q501
R520 2.2K 1/10W
R521 33K 1/10W
C510 K-.047 50V/25V
R528 10K 1/10W
C514 Z-.01
R527 18K 1/10W
R503 12K 1/10W
R509 10K 1/10W
R506 F-1.2K 1/10W
C512 Z-.01
R505 680 1/10W
R510 3.3K 1/10W
R513 220 1/10W
L503 100μH
C504 6.3V 100μ
C507 22 CH
C505 22 CH
L502 J-15μH


9
10
11
12
13
BB (V)
G
L
N
E
T901
F901 250V T630mA
F902 F992 250V T2.5A
F903 F993 250V T2.5A
C901 .1 250V
C902 .1 250V
L901
J-1
J-2
C993 C903 .01
C994 C904 .01
R901 K-8.2M R991 1/2W
⚠PCB-POWER-SUB
PD
MD
GND
AC-HV-2
AC-HV-1
AC44V
AC-2
AC-1
AC-LV-2
AC-LV-1
AC 44V
D9A7 EM 1Z
D9A2 EM 1Z
D9A6 EM 1Z
D9A3 EM 1Z
C9A2 Z-.01
D9A5 EM 1Z
D9A1 EM 1Z
D9A8 EM 1Z
D9A4 EM 1Z
C9A5 25V 3300μ
C9A4 25V 3300μ
R9B1 6.8 1/4W
D9A9 EM01ZV1
C9A6 63V 100μ
Q9A7 2SA933S-R
Q9A8 2SA933S /2SA13C
R9B4 100 1/4W
R9B3 560K 1/10W
D9C0 1SS252 /1SS131
D9C1 1SS252 /1SS13
D9B0 EM01ZV1
C9A7 63V 100μ
R9A3 100 1/4W
R9A4 3.3K 1/4W
Q9A1 2SA1619A-Q.
D9B1 HZ30-2


IS
22K
22K
DTC124EK/UN2212

transistors are 2SC3052-E.F
otherwise specified.
transistors are 2SA1235-E.F
otherwise specified.

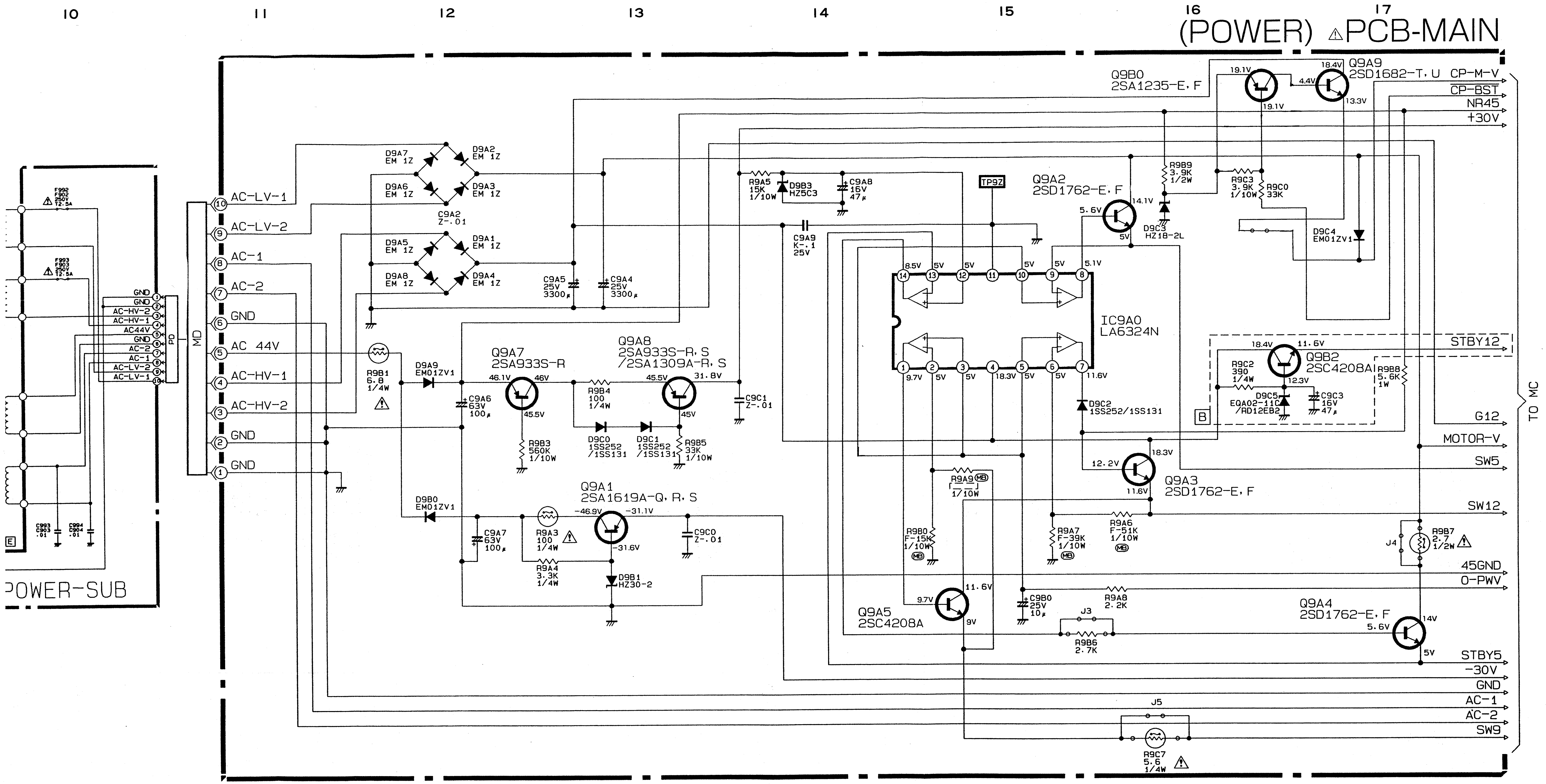
○: Employed ×: Not employed

MODEL \ SYMBOL	A	B	C	R530
HS-521(Y)	○	×	×	390
HS-520V(B),HS-521V(A)/(IR)	×	×	×	0Ω
HS-521V(B)	×	○	○	0Ω
HS-521V(E)	○	○	○	390
HS-521V(G)	○	○	○	390

○: EMPLOYED × : NOT EMPLOYED

MODEL \ SYMBOL	R9B6	J3	R9B7	J4	B AREA	R9A9	R9C7	J5	N A
HS-521(Y)	○	×	×	○	○	F-12K	×	○	○
HS-520V(B),HS-521V(B)	×	○	○	×	×	F-13K	○	×	○
HS-521V(E)/(G)/(IR)	○	×	×	○	×	F-12K	×	○	○
HS-521V(A)	○	×	×	○	×	F-12K	×	○	×

(POWER) ⚠PCB-MAIN

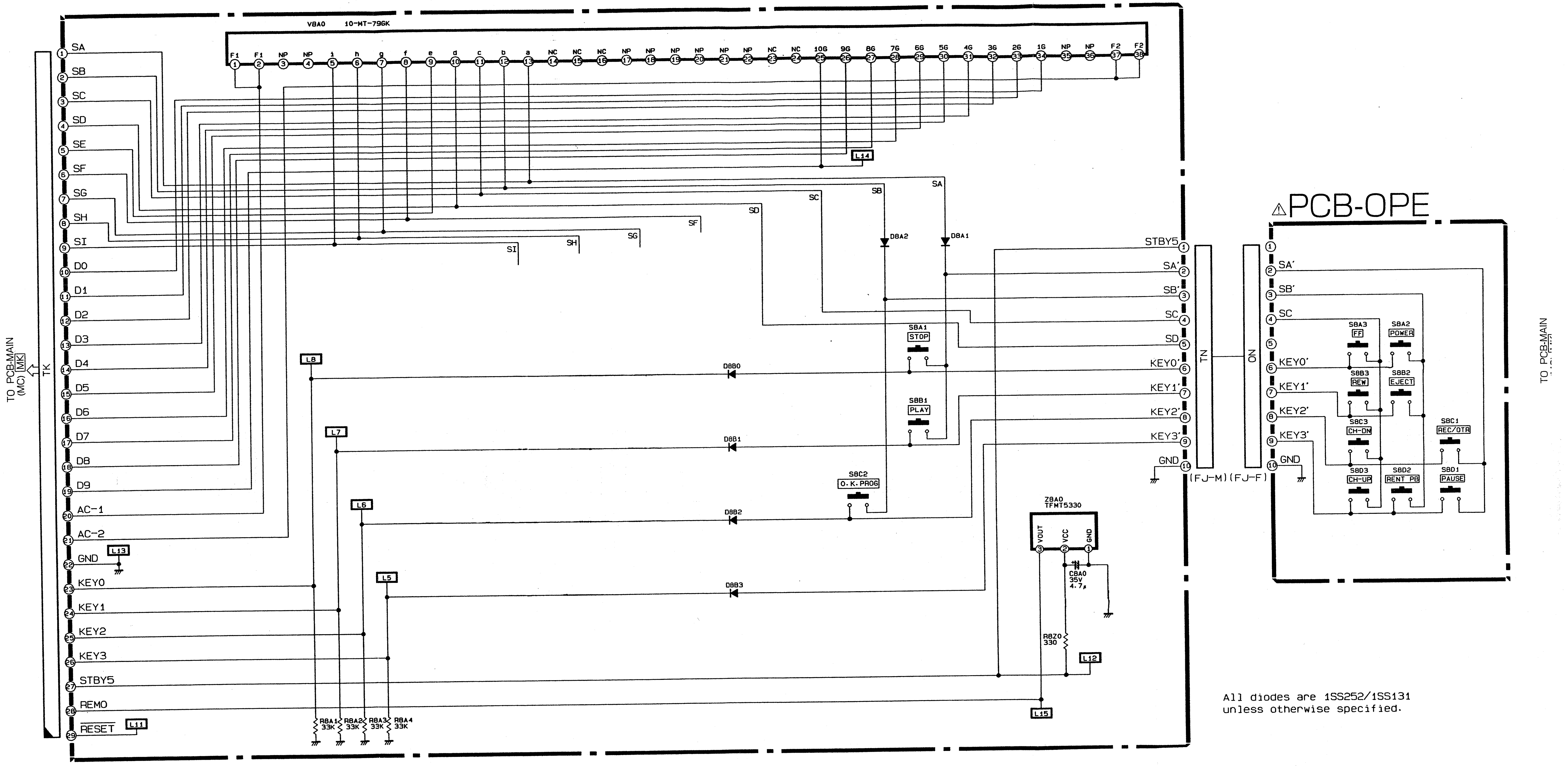


10
11
12
13
14
15
16
17
POWER-SUB
F992 F902 250V T2.5A
F993 F903 250V T2.5A
GND
GND
AC-HV-2
AC-HV-1
AC44V
GND
AC-2
AC-1
AC-LV-2
AC-LV-1
PD
MD
C993 C903 .01
C994 C904 .01
E
AC-LV-1
AC-LV-2
AC-1
AC-2
GND
AC 44V
AC-HV-1
AC-HV-2
GND
GND
D9A7 EM 1Z
D9A2 EM 1Z
D9A6 EM 1Z
D9A3 EM 1Z
C9A2 Z-.01
D9A5 EM 1Z
D9A1 EM 1Z
D9A8 EM 1Z
D9A4 EM 1Z
C9A5 25V 3300µ
C9A4 25V 3300µ
R9B1 6.8 1/4W
D9A9 EM01ZV1
C9A6 63V 100µ
Q9A7 2SA933S-R
46.1V
46V
45.5V
R9B3 560K 1/10W
Q9A8 2SA933S-R, S /2SA1309A-R, S
R9B4 100 1/4W
45.5V
31.8V
45V
D9C0 1SS252 /1SS131
D9C1 1SS252 /1SS131
R9B5 33K 1/10W
C9C1 Z-.01
D9B0 EM01ZV1
C9A7 63V 100µ
R9A3 100 1/4W
R9A4 3.3K 1/4W
Q9A1 2SA1619A-Q, R, S
-46.9V
-31.1V
-31.6V
C9C0 Z-.01
D9B1 HZ30-2
R9A5 15K 1/10W
D9B3 HZ5C3
C9A8 16V 47µ
C9A9 K-.1 25V
TP9Z
Q9A2 2SD1762-E, F
5.6V
14.1V
5V
R9B9 3.9K 1/2W
D9C3 HZ18-2L
R9C3 3.9K 1/10W
R9C0 33K
D9C4 EM01ZV1
Q9B0 2SA1235-E, F
19.1V
19.1V
18.4V
4.4V
13.3V
Q9A9 2SD1682-T, U
CP-M-V
CP-BST
NR45
+30V
8.5V
5V
5V
5V
5V
5.1V
IC9A0 LA6324N
9.7V
5V
5V
18.3V
5V
5V
11.6V
D9C2 1SS252/1SS131
R9C2 390 1/4W
18.4V
11.6V
Q9B2 2SC4208A
12.3V
D9C5 EQA02-11C /RD12EB2
C9C3 16V 47µ
R9B8 5.6K 1W
B
STBY12
G12
MOTOR-V
SW5
Q9A3 2SD1762-E, F
12.2V
18.3V
11.6V
R9A9 MB 1/10W
R9A6 F-51K 1/10W MB
SW12
R9B0 F-15K 1/10W MB
R9A7 F-39K 1/10W MB
J4
R9B7 2.7 1/2W
45GND
O-PWV
Q9A5 2SC4208A
9.7V
11.6V
9V
C9B0 25V 10µ
R9A8 2.2K
J3
R9B6 2.7K
Q9A4 2SD1762-E, F
5.6V
14V
5V
STBY5
-30V
GND
AC-1
AC-2
SW9
J5
R9C7 5.6 1/4W
TO MC

○ : EMPLOYED × : NOT EMPLOYED

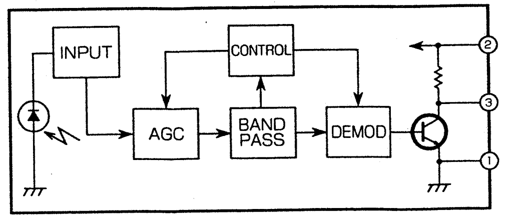
MODEL / SYMBOL	R9B6	J3	R9B7	J4	B AREA	R9A9	R9C7	J5	N AREA	J-1,J-2
HS-521(Y)	○	×	×	○	○	F-12K	×	○	○	×
HS-520V(B),HS-521V(B)	×	○	○	×	×	F-13K	○	×	○	×
HS-521V(E)/(G)/(IR)	○	×	×	○	×	F-12K	×	○	○	×
HS-521V(A)	○	×	×	○	×	F-12K	×	○	×	○

HS-520V(B) ⚠PCB-TIMER

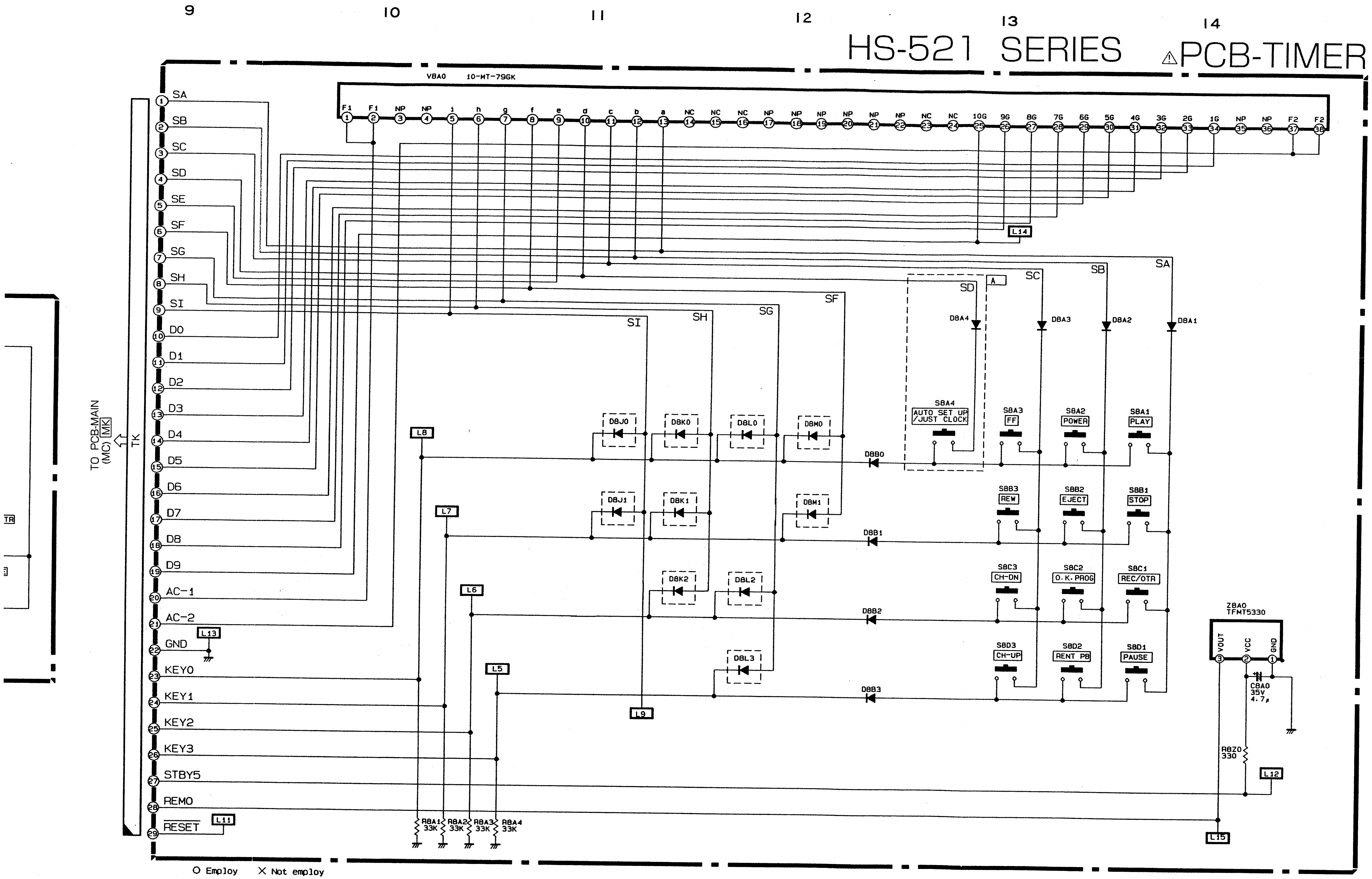

1
2
3
4
5
6
7
8
A
B
C
D
E
V8A0 10-MT-79GK
F1 F1 NP NP i h g f e d c b a NC NC NC NP NP NP NP NP NP NC NC 10G 9G 8G 7G 6G 5G 4G 3G 2G 1G NP NP F2 F2
SA
SB
SC
SD
SE
SF
SG
SH
SI
D0
D1
D2
D3
D4
D5
D6
D7
D8
D9
AC-1
AC-2
GND
KEY0
KEY1
KEY2
KEY3
STBY5
REMO
RESET
TO PCB-MAIN (MC) MK
TK
L5
L6
L7
L8
L11
L12
L13
L14
L15
D8A1
D8A2
D8B0
D8B1
D8B2
D8B3
S8A1 STOP
S8B1 PLAY
S8C2 O.K.PROG
Z8A0 TFMT5330
VOUT VCC GND
C8A0 35V 4.7μ
R8Z0 330
R8A1 33K
R8A2 33K
R8A3 33K
R8A4 33K
STBY5
SA'
SB'
SC
SD
KEY0'
KEY1'
KEY2'
KEY3'
GND
TN
ON
(FJ-M)
(FJ-F)
⚠PCB-OPE
S8A3 FF
S8A2 POWER
S8B3 REW
S8B2 EJECT
S8C3 CH-DN
S8C1 REC/OTR
S8D3 CH-UP
S8D2 RENT PB
S8D1 PAUSE
TO PCB-MAIN

All diodes are 1SS252/1SS131 unless otherwise specified.

Z8A0 PREAMAP


INPUT
CONTROL
AGC
BAND PASS
DEMOD
②
③
①

HS-521 SERIES ⚠PCB-TIMER


9
10
11
12
13
14
15
16
V8A0 10-MT-79GK
F1 F1 NP NP i h g f e d c b a NC NC NC NP NP NP NP NP NP NC NC 10G 9G 8G 7G 6G 5G 4G 3G 2G 1G NP NP F2 F2
SA
SB
SC
SD
SE
SF
SG
SH
SI
D0
D1
D2
D3
D4
D5
D6
D7
D8
D9
AC-1
AC-2
GND
KEY0
KEY1
KEY2
KEY3
STBY5
REMO
RESET
TO PCB-MAIN (MC) MK
TK
TR
L14
L13
L11
L8
L7
L6
L5
L9
L12
L15
A
D8A4
D8A3
D8A2
D8A1
S8A4 AUTO SET UP /JUST CLOCK
S8A3 FF
S8A2 POWER
S8A1 PLAY
S8B3 REW
S8B2 EJECT
S8B1 STOP
S8C3 CH-DN
S8C2 O.K. PROG
S8C1 REC/OTR
S8D3 CH-UP
S8D2 RENT PB
S8D1 PAUSE
D8J0
D8K0
D8L0
D8M0
D8J1
D8K1
D8M1
D8K2
D8L2
D8L3
D8B0
D8B1
D8B2
D8B3
Z8A0 TFMT5330
VOUT VCC GND
C8A0 35V 4.7μ
R8Z0 330
R8A1 33K
R8A2 33K
R8A3 33K
R8A4 33K

FUNCTION SELECTOR MAP

	D8J0	D8K0	D8L0	D8M0
Y, E	HEAD 1	MESECAM	PDC	GEMSTAR
G	HEAD 1	—	—	GEMSTAR
B, IR	HEAD 1	U-ONLY	PDC	—
A	—	—	—	—
EE	HEAD 1	—	VPS	GEMSTAR

	D8J1	D8K1		D8M1
Y, E	HEAD 2	C+ SCRT		SHOWVIEW
G	HEAD 2	C+ SCRT		—
B, IR	HEAD 2	—		—
A	LP	—		—
EE	HEAD 2	—		

		D8K2	D8L2	
Y, E		2 SCRT	JUST CLK	
G		2 SCRT	A.S.U	
B, IR		—	—	
A		—	—	
EE		—	—	

			D8L3	
Y, E			SIMPLE	
G			SIMPLE	
B, IR			—	
A			—	
EE			—	

All diodes are 1SS252/1SS131
unless otherwise specified.

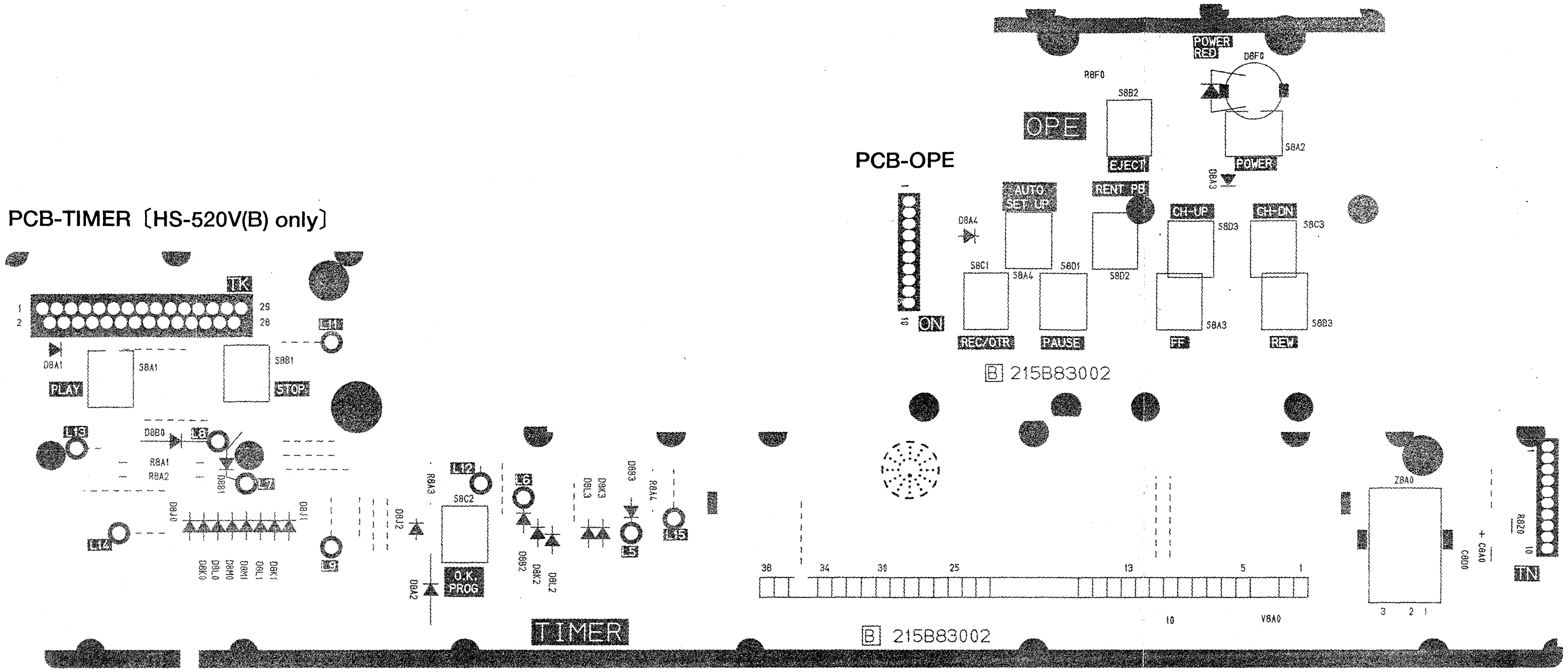
○ Employ ✕ Not employ

SYMBOL / MODEL	D8J0	D8J1	D8K0	D8K1	D8K2	D8L0	D8L2	D8L3	D8M0	D8M1	A AREA
HS-521(Y)	○	✕	○	○	✕	✕	✕	○	✕	✕	✕
HS-521V(B)	✕	○	○	✕	✕	○	✕	✕	✕	✕	○
HS-521V(G)	○	✕	✕	○	✕	✕	○	✕	○	✕	○
HS-521V(IR)	✕	○	✕	✕	✕	✕	✕	✕	✕	✕	○
HS-521V(E)	○	✕	○	✕	○	○	○	✕	○	○	○
HS-521V(A)	✕	○	✕	✕	✕	✕	✕	✕	✕	✕	✕

ESS
- 1
- 1
- 1
- 4
- 4
4
- 4
- 4
- 4
4
4
4
4
4
4
2
2
2
2
1
1
1
1
1
1
1
1
2
2
5
6
4
2
5
2

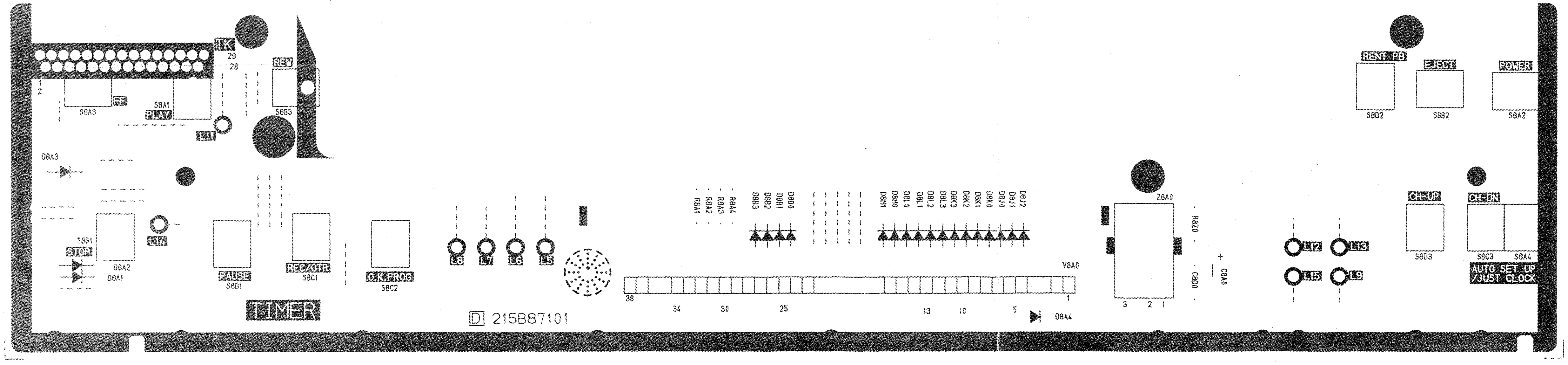
PCB-OPE

PCB-TIMER〔HS-520V(B) only〕

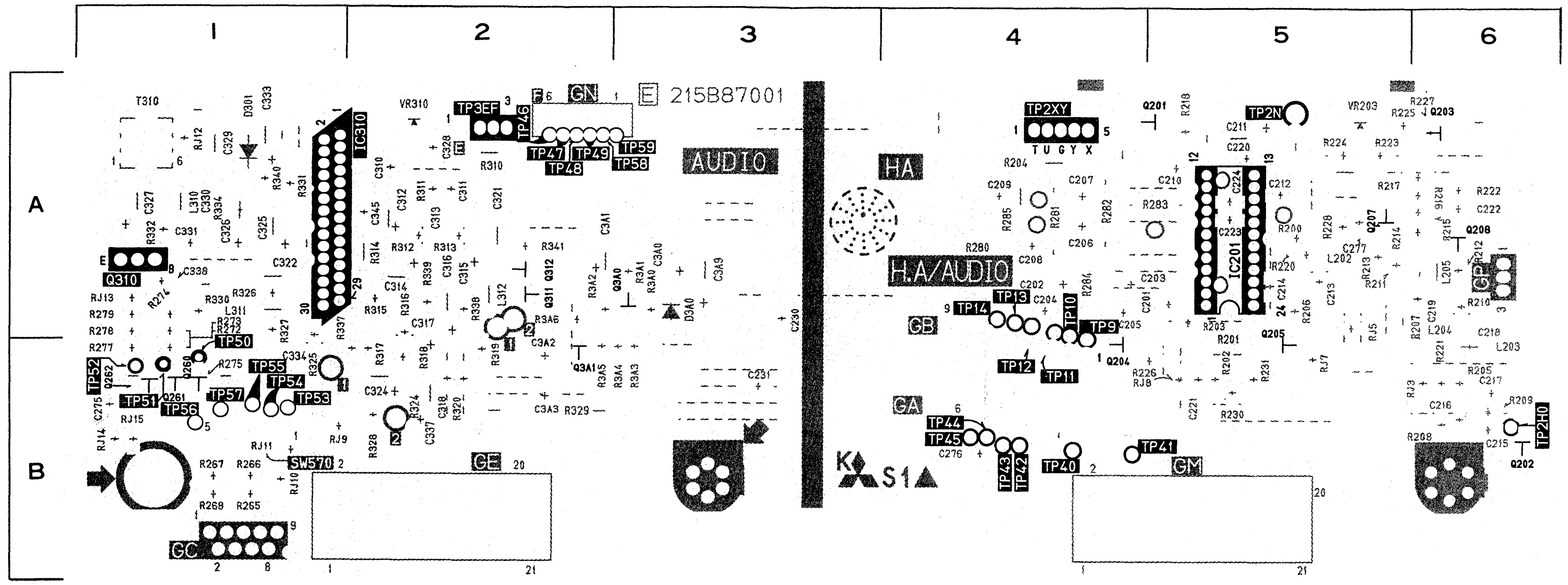

POWER RED
D8F0
R8F0
S8B2
OPE
EJECT
S8A2
POWER
D8A3
AUTO SET UP
RENT PB
CH-UP
CH-DN
D8A4
S8C1
S8A4
S8D1
S8D2
S8D3
S8C3
S8A3
S8B3
ON
REC/OTR
PAUSE
FF
REW
B 215B83002
TK
1
2
29
28
L11
D8A1
S8A1
S8B1
PLAY
STOP
L13
D8B0
L8
R8A1
R8A2
D8B1
L7
D8J0
D8L0
D8K0
D8M0
D8M1
D8K1
D8L1
D8J1
L14
L9
D8J2
R8A3
L12
S8C2
O.K. PROG
D8A2
L6
D8B2
D8K2
D8L2
D8K3
D8L3
D8B3
R8A4
L5
L15
38
34
30
25
13
5
1
10
V8A0
Z8A0
C8A0
C8D0
R8Z0
TN
3 2 1
TIMER
B 215B83002

PCB-TIMER

PCB-TIMER〔Except HS-520V(B)〕


TK
29
28
2
S8A3
FF
S8A1
PLAY
REW
S8B3
L11
D8A3
S8B1
STOP
D8A2
D8A1
L14
PAUSE
S8D1
REC/OTR
S8C1
O.K.PROG
S8C2
L8
L7
L6
L5
TIMER
D 215B87101
R8A1
R8A2
R8A3
R8A4
D8B3
D8B2
D8B1
D8B0
D8M1
D8M0
D8L0
D8L1
D8L2
D8L3
D8K3
D8K2
D8K1
D8K0
D8J0
D8J1
D8J2
38
34
30
25
13
10
5
1
V8A0
D8A4
Z8A0
R8Z0
C8D0
C8A0
3 2 1
RENT PB
EJECT
POWER
S8D2
S8B2
S8A2
L12
L13
L15
L9
CH-UP
CH-DN
S8D3
S8C3
S8A4
AUTO SET UP /JUST CLOCK

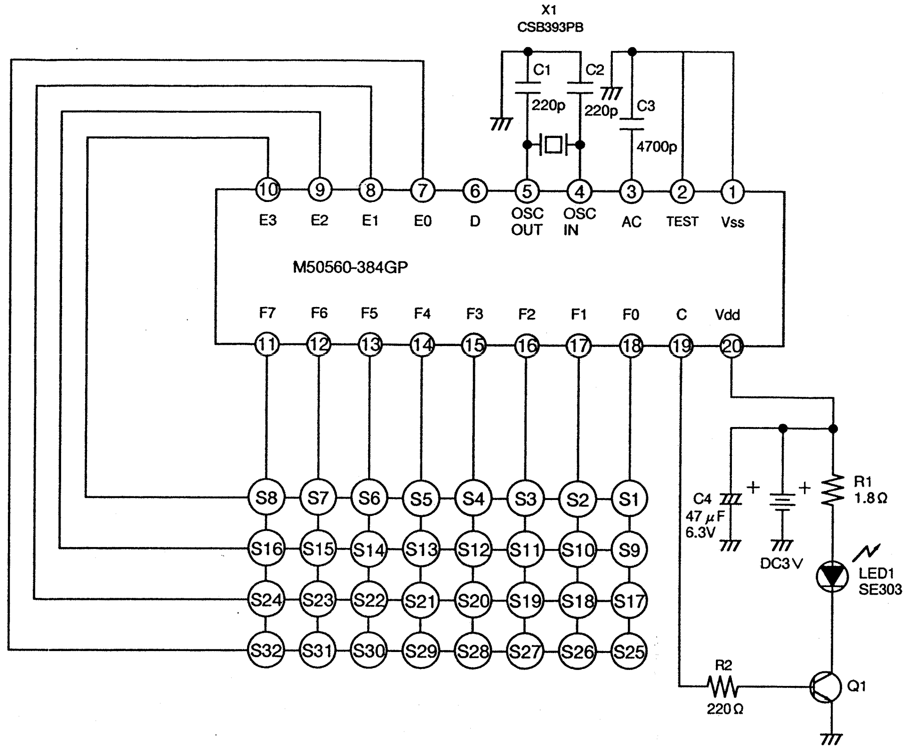
PCB-HA/AUDIO



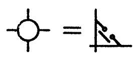
PCB-HA/AUDIO

SYMBOL NO.	ADDRESS
C201	A – 4
C202	A – 4
C203	A – 4
C204	A – 4
C205	A – 4
C206	A – 4
C207	A – 4
C208	A – 4
C209	A – 4
C210	A – 5
C211	A – 5
C212	A – 5
C213	A – 5
C214	A – 5
C215	B – 6
C216	B – 6
C217	B – 6
C218	A – 6
C219	A – 6
C220	A – 5
C221	B – 5
C222	A – 6
C223	A – 5
C224	A – 5
C230	A – 3
C231	B – 3
C275	B – 1
C276	B – 4
C277	A – 5
C310	A – 2
C311	A – 2
C312	A – 2
C313	A – 2
C314	A – 2
C315	A – 2
C316	A – 2
C317	A – 2
C318	B – 2
C321	A – 2
C322	A – 1
C324	B – 2
C325	A – 1
C326	A – 1
C327	A – 1
C328	A – 2
C329	A – 1
C330	A – 1
C331	A – 1
C333	A – 1
C334	B – 1
C337	B – 2
C338	A – 1
C345	A – 2
C3A0	A – 3
C3A1	A – 2
C3A2	B – 2
C3A3	B – 2
C3A9	A – 3
D301	A – 1
D3A0	A – 3
IC201	A – 5
IC310	A – 1
L202	A – 5
L203	B – 6
L204	A – 6
L205	A – 6
L310	A – 1
L311	A – 1
L312	A – 2
Q201	A – 4
Q202	B – 6
Q203	A – 6
Q204	B – 4
Q205	B – 5
Q207	A – 5
Q208	A – 6
Q260	B – 1
Q261	B – 1
Q262	B – 1
Q310	A – 1
Q311	A – 2
Q312	A – 2
Q3A0	A – 3
Q3A1	B – 2
R200	A – 5
R201	A – 5
R202	B – 5
R203	A – 5
R204	A – 4
R205	B – 6
R206	A – 5
R207	A – 5
R208	B – 6
R209	B – 6
R210	A – 6
R211	A – 5
R212	A – 6
R213	A – 5
R214	A – 5
R215	A – 6
R216	A – 6
R217	A – 5
R218	A – 5
R220	A – 5
R221	B – 6
R222	A – 6
R223	A – 5
R224	A – 5
R225	A – 5
R226	B – 4
R227	A – 5
R228	A – 5
R230	B – 5
R231	B – 5
R265	B – 1
R266	B – 1
R267	B – 1
R268	B – 1
R272	B – 1
R273	A – 1
R274	A – 1
R275	B – 1
R277	B – 1
R278	A – 1
R279	A – 1
R280	A – 4
R281	A – 4
R282	A – 4
R283	A – 4
R284	A – 4
R285	A – 4
R310	A – 2
R311	A – 2
R312	A – 2
R313	A – 2
R314	A – 2
R315	A – 2
R316	A – 2
R317	B – 2
R318	B – 2
R319	B – 2
R320	B – 2
R324	B – 2
R325	B – 1
R326	A – 1
R327	A – 1
R328	B – 2
R329	B – 2
R330	A – 1
R331	A – 1
R332	A – 1
R334	A – 1
R337	A – 1
R338	A – 2
R339	A – 2
R340	A – 1
R341	A – 2
R3A0	A – 3
R3A1	A – 3
R3A2	A – 2
R3A3	B – 3
R3A4	B – 3
R3A5	B – 2
R3A6	A – 2
RJ3	B – 6
RJ5	A – 5
RJ7	B – 5
RJ8	B – 5
RJ9	B – 1
RJ10	B – 1
RJ11	B – 1
RJ12	A – 1
RJ12	A – 1
RJ14	B – 1
RJ15	B – 1
SW570	B – 1
T310	A – 1
TP9	A – 4
TP10	A – 4
TP11	B – 4
TP12	B – 4
TP13	A – 4
TP14	A – 4
TP40	B – 4
TP41	B – 4
TP42	B – 4
TP43	B – 4
TP44	B – 4
TP45	B – 4
TP46	A – 2
TP47	A – 2
TP48	A – 2
TP49	A – 2
TP50	B – 1
TP51	B – 1
TP52	B – 1
TP53	B – 1
TP54	B – 1
TP55	B – 1
TP56	B – 1
TP57	B – 1
TP58	A – 2
TP59	A – 2
TP2N	A – 5
TP2H0	B – 6
TP2XY	A – 4
TP3EF	A – 2
VR203	A – 5
VR310	A – 2

HS-521(Y)
TRANSMITTER REMOTE CONTROL

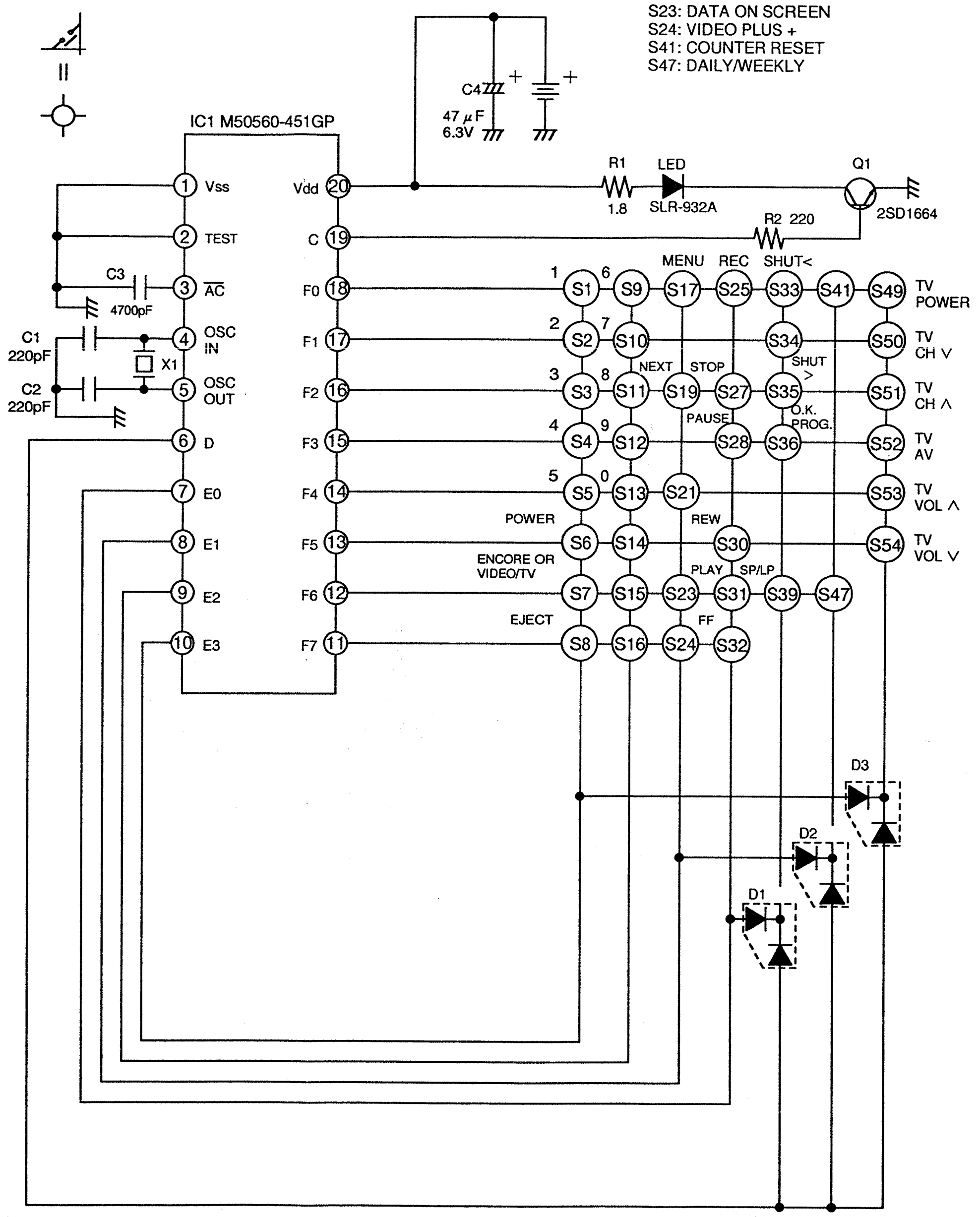

X1
CSB393PB
C1
220p
C2
220p
C3
4700p
M50560-384GP
E3
E2
E1
E0
D
OSC OUT
OSC IN
AC
TEST
Vss
F7
F6
F5
F4
F3
F2
F1
F0
C
Vdd
S8 S7 S6 S5 S4 S3 S2 S1
S16 S15 S14 S13 S12 S11 S10 S9
S24 S23 S22 S21 S20 S19 S18 S17
S32 S31 S30 S29 S28 S27 S26 S25
C4
47 μF
6.3V
DC3V
R1
1.8Ω
LED1
SE303
R2
220Ω
Q1

Key No	FUNCTION
S6	POWER
S7	ENCORE OR VIDEO/TV
S15	JOG/CHANNEL -
S16	JOG/CHANNEL +
S17	MENU
S18	SHUTTLE/INDEX <
S19	O.K. PROG.
S20	SHUTTLE/INDEX >
S25	REC
S26	DATA ON SCREEN
S27	STOP
S28	PAUSE
S29	COUNTER RESET/NEXT
S30	REW
S31	PLAY
S32	FF

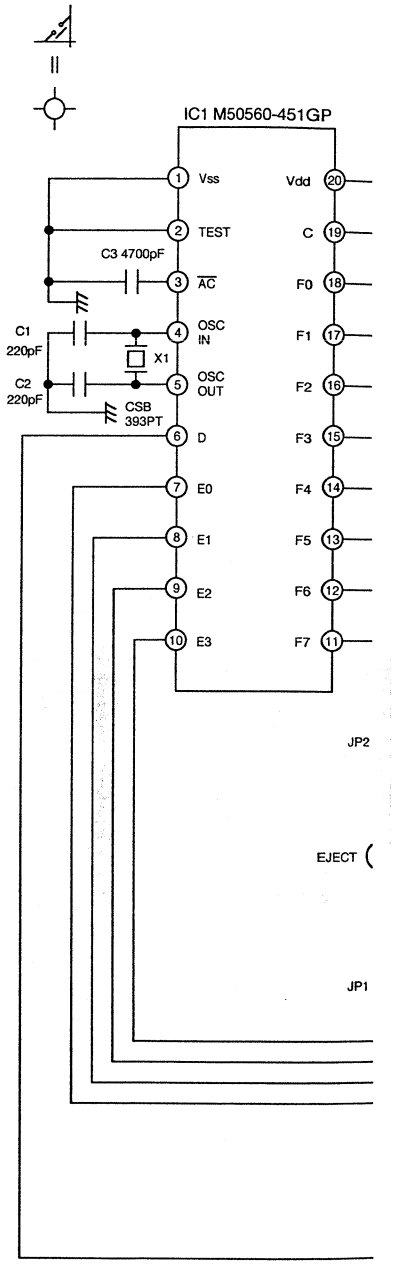


HS-520V(B)/HS-521V(A)
TRANSMITTER REMOTE CONTROL

S14: CANCEL
S15: JOG/CHANNEL -
S16: JOG/CHANNEL +
S21: 10-99
S23: DATA ON SCREEN
S24: VIDEO PLUS +
S41: COUNTER RESET
S47: DAILY/WEEKLY

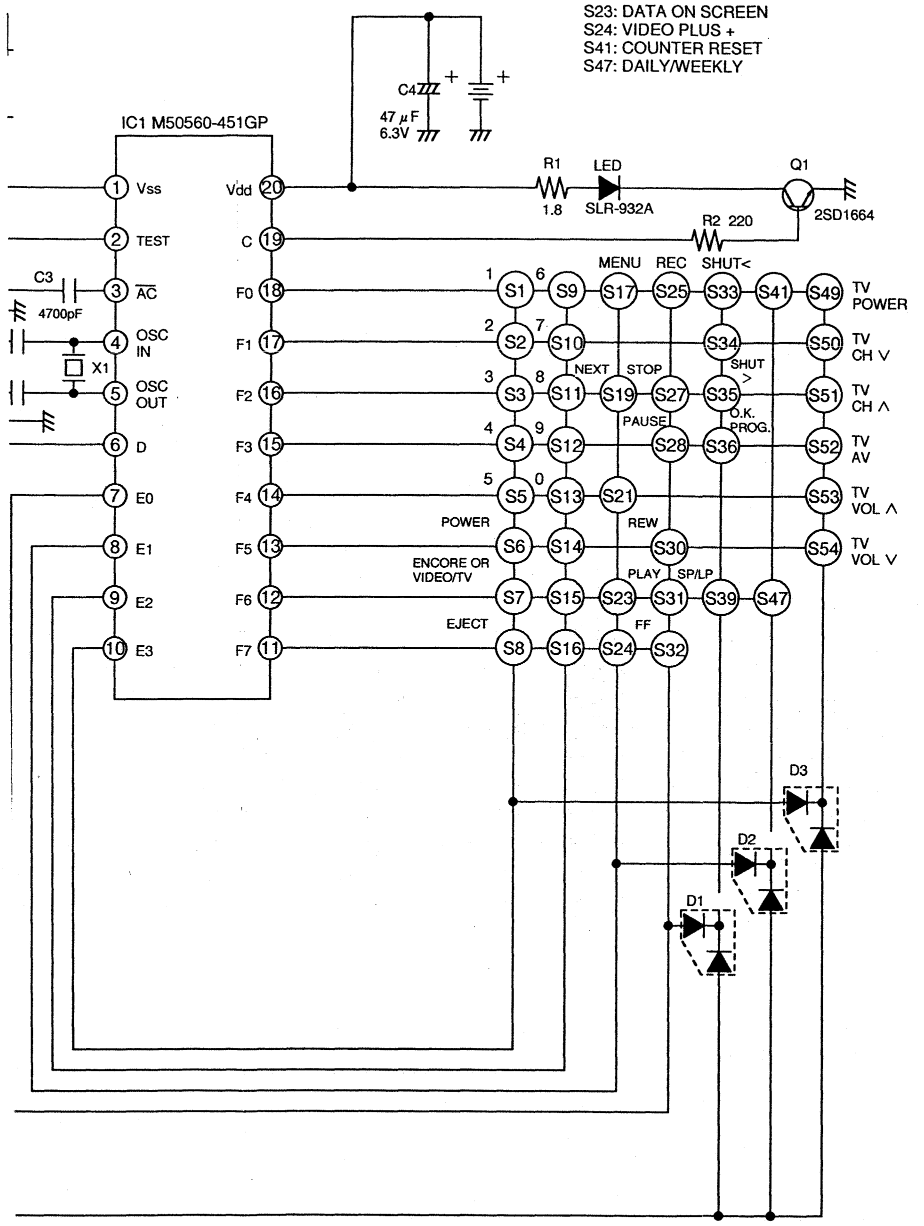

IC1 M50560-451GP
C4
47 μF
6.3V
R1
1.8
LED
SLR-932A
Q1
2SD1664
R2 220
Vss
TEST
AC
OSC IN
OSC OUT
D
E0
E1
E2
E3
Vdd
C
F0
F1
F2
F3
F4
F5
F6
F7
C3
4700pF
C1
220pF
C2
220pF
X1
MENU
REC
SHUT<
NEXT
STOP
SHUT >
PAUSE
O.K. PROG.
REW
POWER
ENCORE OR VIDEO/TV
PLAY
SP/LP
FF
EJECT
TV POWER
TV CH ∨
TV CH ∧
TV AV
TV VOL ∧
TV VOL ∨
D1
D2
D3

HS-521V(E)(G)
TRANSMITTER REMOTE


IC1 M50560-451GP
Vss
TEST
AC
OSC IN
OSC OUT
D
E0
E1
E2
E3
Vdd
C
F0
F1
F2
F3
F4
F5
F6
F7
C3 4700pF
C1
220pF
C2
220pF
X1
CSB
393PT
JP2
EJECT
JP1

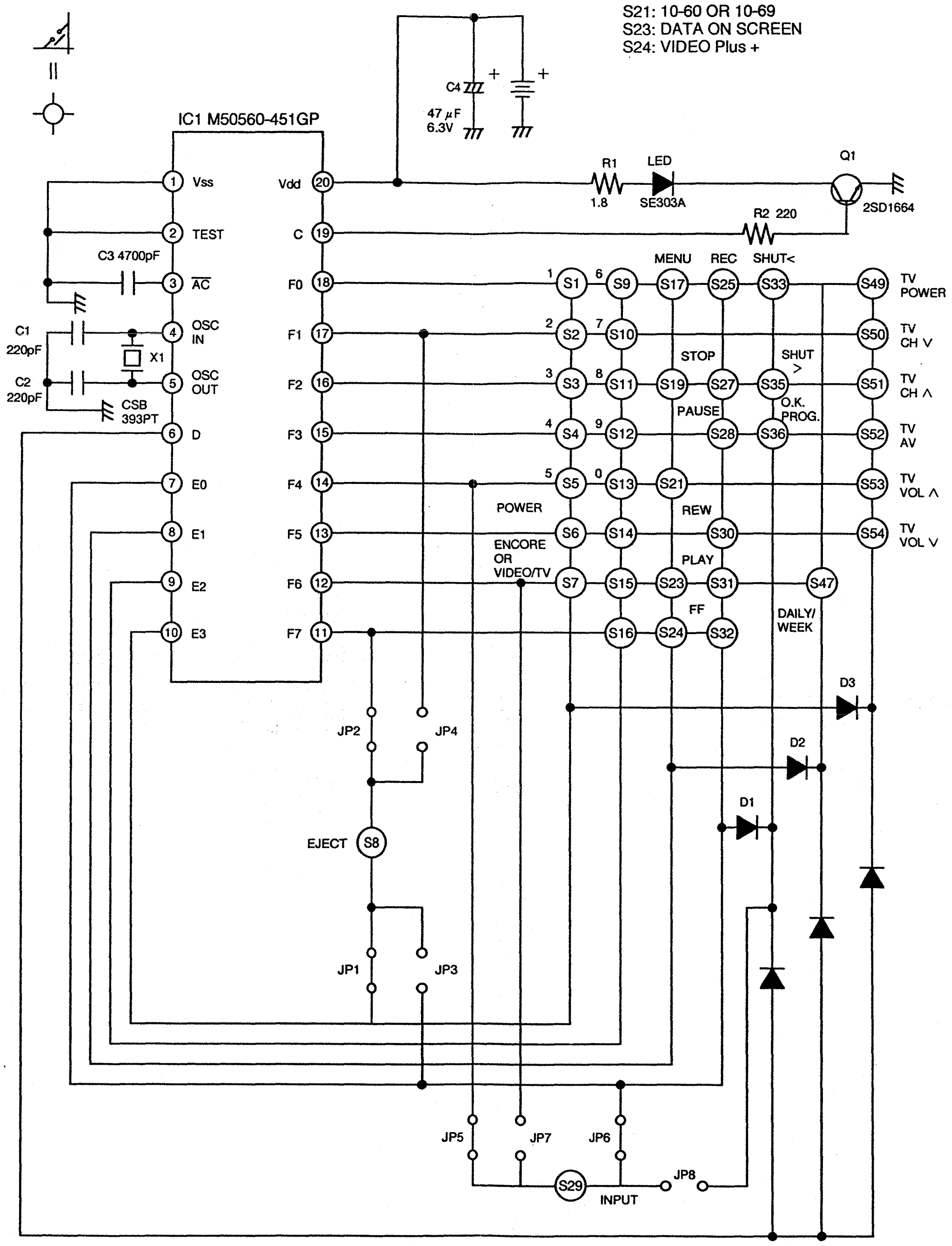
520V(B)/HS-521V(A)
ANSMITTER REMOTE CONTROL

S14: CANCEL
S15: JOG/CHANNEL -
S16: JOG/CHANNEL +
S21: 10-99
S23: DATA ON SCREEN
S24: VIDEO PLUS +
S41: COUNTER RESET
S47: DAILY/WEEKLY


IC1 M50560-451GP
1 Vss
2 TEST
3 AC
4 OSC IN
5 OSC OUT
6 D
7 E0
8 E1
9 E2
10 E3
Vdd 20
C 19
F0 18
F1 17
F2 16
F3 15
F4 14
F5 13
F6 12
F7 11
C3 4700pF
X1
C4 47μF 6.3V
R1 1.8
LED SLR-932A
Q1 2SD1664
R2 220
MENU
REC
SHUT<
TV POWER
TV CH V
TV CH Λ
TV AV
TV VOL Λ
TV VOL V
NEXT
STOP
SHUT >
PAUSE
O.K. PROG.
POWER
REW
ENCORE OR VIDEO/TV
PLAY
SP/LP
EJECT
FF
D1
D2
D3

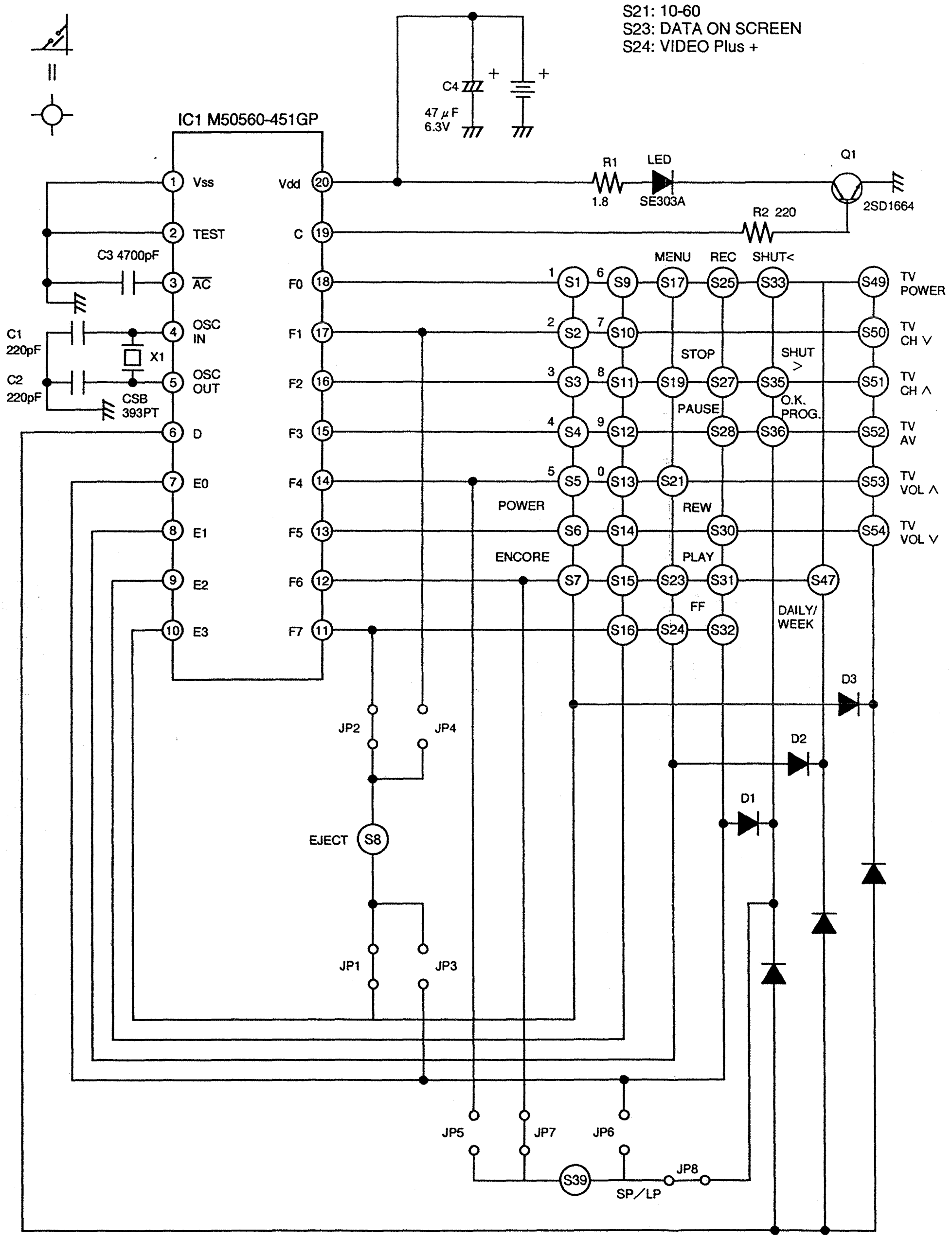
HS-521V(E)(G)
TRANSMITTER REMOTE CONTROL

S14: CANCEL
S15: JOG/CHANNEL -
S16: JOG/CHANNEL +
S19: CT-RES/NEXT
S21: 10-60 OR 10-69
S23: DATA ON SCREEN
S24: VIDEO Plus +

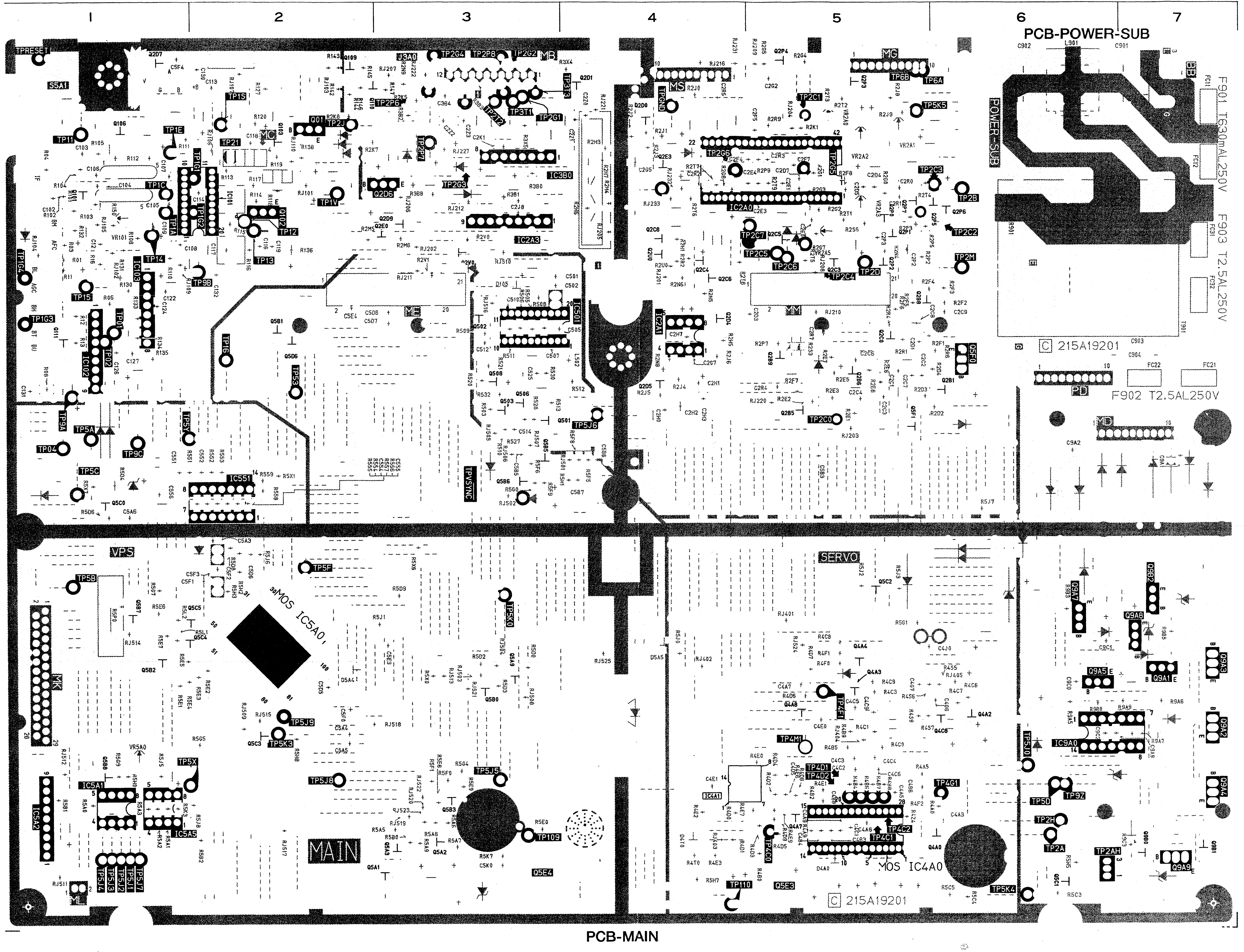

IC1 M50560-451GP
1 Vss
2 TEST
3 AC
4 OSC IN
5 OSC OUT
6 D
7 E0
8 E1
9 E2
10 E3
Vdd 20
C 19
F0 18
F1 17
F2 16
F3 15
F4 14
F5 13
F6 12
F7 11
C3 4700pF
C1 220pF
C2 220pF
X1
CSB 393PT
C4 47μF 6.3V
R1 1.8
LED SE303A
Q1 2SD1664
R2 220
MENU
REC
SHUT<
TV POWER
TV CH V
TV CH Λ
TV AV
TV VOL Λ
TV VOL V
STOP
SHUT >
PAUSE
O.K. PROG.
POWER
REW
ENCORE OR VIDEO/TV
PLAY
FF
DAILY/ WEEK
EJECT
JP1
JP2
JP3
JP4
JP5
JP6
JP7
JP8
INPUT
D1
D2
D3

HS-521V(B)(IR)
TRANSMITTER REMOTE CONTROL

S14: CANCEL
S15: JOG/CHANNEL -
S16: JOG/CHANNEL +
S19: CT-RES/NEXT
S21: 10-60
S23: DATA ON SCREEN
S24: VIDEO Plus +


IC1 M50560-451GP
1 Vss
2 TEST
3 AC
4 OSC IN
5 OSC OUT
6 D
7 E0
8 E1
9 E2
10 E3
Vdd 20
C 19
F0 18
F1 17
F2 16
F3 15
F4 14
F5 13
F6 12
F7 11
C3 4700pF
C1 220pF
C2 220pF
X1
CSB 393PT
C4 47μF 6.3V
R1 1.8
LED SE303A
Q1 2SD1664
R2 220
MENU
REC
SHUT<
TV POWER
TV CH V
TV CH Λ
TV AV
TV VOL Λ
TV VOL V
STOP
SHUT >
PAUSE
O.K. PROG.
POWER
REW
ENCORE
PLAY
FF
DAILY/ WEEK
EJECT
JP1
JP2
JP3
JP4
JP5
JP6
JP7
JP8
SP/LP
D1
D2
D3

PCB-MAIN 〔SOLDER SIDE〕


1
2
3
4
5
6
7
PCB-POWER-SUB
POWER-SUB
F901 T630mAL250V
F903 T2.5AL250V
F902 T2.5AL250V
215A19201
MC
MS
MB
MG
MM
ME
MD
PD
VPS
SERVO
MAIN
MK
ML
MOS IC5A0
MOS IC4A0
IC101
IC102
IC103
IC551
IC2A0
IC2A1
IC2A3
IC3B0
IC501
IC5A1
IC5A2
IC5A5
IC9A0
IC4A1
TPRESET
TPVSYNC
PCB-MAIN

PCB-MAIN 〔SOLDER SIDE〕

SYMBOL NO.	ADDRESS	SYMBOL NO.	ADDRESS	SYM N
C102	A – 1	C2G5	A – 4	C5
C103	A – 1	C2G7	B – 4	C5
C104	A – 1	C2H0	C – 4	C5
C105	A – 1	C2H1	B – 4	C5
C106	A – 1	C2H2	C – 4	C5
C107	A – 1	C2H3	C – 4	C9
C108	B – 2	C2H7	B – 4	C9
C109	B – 1	C2J8	A – 3	C9
C113	A – 2	C2K1	A – 3	C9
C114	A – 2	C2P2	B – 5	C9
C116	B – 2	C2P3	B – 5	C9
C117	B – 2	C2R0	A – 5	
C118	A – 2	C2R1	A – 5	D1
C119	B – 2	C2R2	A – 4	D2
C121	B – 1	C2R3	A – 5	D4
C122	B – 1	C2R4	B – 5	D4
C124	B – 1	C2R5	A – 4	D5
C126	B – 1	C2R7	B – 5	D5
C127	B – 1	C2Z0	A – 4	
C130	A – 2	C2Z1	A – 4	F9
C131	B – 1	C2Z2	A – 3	F9
C132	B – 2	C2Z3	A – 3	F9
C501	B – 3	C3B4	A – 3	
C502	B – 3	C4A3	E – 6	FC
C505	B – 4	C4A5	E – 5	FC
C507	B – 3	C4A6	E – 5	FC
C510	B – 3	C4A7	D – 5	FC
C512	B – 3	C4A9	E – 5	FC
C514	C – 3	C4B0	E – 5	FC
C525	B – 3	C4B3	E – 5	
C551	C – 1	C4B4	E – 5	IC1
C552	C – 2	C4B6	E – 5	IC1
C554	C – 2	C4C1	E – 5	IC1
C555	C – 2	C4C2	D – 5	IC5
C556	C – 1	C4C3	D – 5	IC5
C901	A – 6	C4C4	D – 5	IC2
C902	A – 6	C4C5	D – 5	IC2
C903	B – 7	C4C6	E – 5	IC2
C904	B – 7	C4C9	D – 5	IC3
C2C1	B – 5	C4D5	E – 5	IC4
C2C2	B – 5	C4E0	D – 5	IC4
C2C3	B – 5	C4E1	E – 4	IC5
C2C4	B – 5	C4G7	D – 5	IC5
C2C6	B – 5	C4G8	D – 5	IC5
C2C7	B – 5	C4J0	D – 5	IC5
C2C8	B – 5	C5A3	C – 2	IC9
C2C9	B – 6	C5A4	D – 2	
C2D1	B – 5	C5A5	D – 2	J3
C2D3	B – 5	C5A6	C – 1	
C2D4	A – 5	C5B3	C – 5	L5
C2D5	A – 5	C5B5	C – 3	L9
C2D7	A – 5	C5B6	C – 4	
C2E0	B – 5	C5B7	C – 4	Q0
C2E1	A – 5	C5D5	D – 2	Q1
C2E3	A – 5	C5D6	C – 2	Q1
C2E4	A – 5	C5D7	B – 3	Q1
C2F4	A – 4	C5D8	B – 3	Q1
C2F5	A – 5	C5E3	D – 3	Q1
C2F7	A – 5	C5E4	B – 2	Q1
C2G2	A – 5	C5F0	D – 2	Q1
]

〔SOLDER SIDE〕

DRESS
– 1
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– 5

SYMBOL NO.	ADDRESS
C2G5	A – 4
C2G7	B – 4
C2H0	C – 4
C2H1	B – 4
C2H2	C – 4
C2H3	C – 4
C2H7	B – 4
C2J8	A – 3
C2K1	A – 3
C2P2	B – 5
C2P3	B – 5
C2R0	A – 5
C2R1	A – 5
C2R2	A – 4
C2R3	A – 5
C2R4	B – 5
C2R5	A – 4
C2R7	B – 5
C2Z0	A – 4
C2Z1	A – 4
C2Z2	A – 3
C2Z3	A – 3
C3B4	A – 3
C4A3	E – 6
C4A5	E – 5
C4A6	E – 5
C4A7	D – 5
C4A9	E – 5
C4B0	E – 5
C4B3	E – 5
C4B4	E – 5
C4B6	E – 5
C4C1	E – 5
C4C2	D – 5
C4C3	D – 5
C4C4	D – 5
C4C5	D – 5
C4C6	E – 5
C4C9	D – 5
C4D5	E – 5
C4E0	D – 5
C4E1	E – 4
C4G7	D – 5
C4G8	D – 5
C4J0	D – 5
C5A3	C – 2
C5A4	D – 2
C5A5	D – 2
C5A6	C – 1
C5B3	C – 5
C5B5	C – 3
C5B6	C – 4
C5B7	C – 4
C5D5	D – 2
C5D6	C – 2
C5D7	B – 3
C5D8	B – 3
C5E3	D – 3
C5E4	B – 2
C5F0	D – 2

SYMBOL NO.	ADDRESS
C5F1	C – 2
C5F2	C – 2
C5F3	C – 2
C5F4	A – 1
C5K0	E – 3
C9A1	C – 7
C9A2	C – 6
C9A9	D – 7
C9C0	D – 6
C9C1	D – 6
C9C2	D – 6
D105	B – 3
D2V0	B – 3
D4A0	E – 5
D4T0	E – 4
D5A4	D – 2
D5A5	D – 4
F901	A – 7
F902	B – 7
F903	B – 7
FC11	A – 7
FC12	A – 7
FC21	B – 7
FC22	B – 7
FC31	B – 7
FC32	B – 7
IC101	A – 2
IC102	B – 1
IC103	B – 1
IC501	B – 3
IC551	C – 1
IC2A0	A – 5
IC2A1	B – 4
IC2A3	B – 3
IC3B0	A – 3
IC4A0	E – 5
IC4A1	E – 4
IC5A0	D – 1
IC5A1	E – 1
IC5A2	E – 1
IC5A5	E – 1
IC9A0	D – 6
J3A0	A – 3
L502	B – 4
L901	A – 6
Q01	A – 2
Q101	A – 1
Q102	A – 2
Q103	A – 2
Q106	A – 1
Q109	A – 2
Q110	A – 3
Q111	B – 1

SYMBOL NO.	ADDRESS
Q501	C – 3
Q502	B – 3
Q503	C – 3
Q506	B – 3
Q508	B – 3
Q2B1	B – 6
Q2B5	C – 5
Q2B6	B – 5
Q2B8	B – 5
Q2B9	B – 5
Q2C0	B – 5
Q2C3	B – 5
Q2C4	B – 4
Q2C5	B – 5
Q2C6	B – 4
Q2C8	B – 4
Q2D0	A – 4
Q2D1	A – 4
Q2D4	B – 4
Q2D5	B – 4
Q2D6	A – 3
Q2D7	A – 1
Q2D9	B – 3
Q2E0	B – 3
Q2E3	A – 4
Q2P0	A – 5
Q2P1	B – 5
Q2P2	B – 5
Q2P3	A – 5
Q2P4	A – 5
Q2P5	A – 6
Q2P6	A – 6
Q2P7	A – 5
Q2U0	B – 4
Q4A0	E – 5
Q4A2	D – 6
Q4A3	D – 5
Q4A4	D – 5
Q4A7	E – 5
Q4A8	D – 5
Q4C8	D – 6
Q5A1	E – 3
Q5A2	E – 3
Q5A3	E – 3
Q5A9	D – 3
Q5B0	D – 3
Q5B1	B – 2
Q5B2	D – 1
Q5B3	E – 3
Q5B5	C – 3
Q5B6	C – 3
Q5B7	D – 1
Q5B8	E – 1
Q5C0	C – 1
Q5C1	E – 6
Q5C2	C – 5
Q5C3	D – 2
Q5C4	D – 1
Q5C5	D – 1
Q5D6	B – 2

SYMBOL NO.	ADDRESS
Q5E3	E – 5
Q5E4	E – 3
Q5F0	B – 6
Q5F1	C – 5
Q9A1	D – 7
Q9A2	D – 7
Q9A3	D – 7
Q9A4	E – 7
Q9A5	D – 6
Q9A7	D – 6
Q9A8	D – 7
Q9A9	E – 7
Q9B0	E – 7
Q9B1	E – 7
Q9B2	D – 7
R01	B – 1
R03	B – 1
R04	A – 1
R06	B – 1
R08	B – 1
R11	B – 1
R12	B – 1
R13	B – 1
R16	B – 1
R101	A – 1
R102	A – 1
R103	A – 1
R104	A – 1
R105	A – 1
R108	B – 1
R110	B – 1
R111	A – 1
R112	A – 1
R113	A – 2
R114	A – 2
R115	B – 2
R116	B – 2
R117	A – 2
R118	A – 2
R119	A – 2
R120	A – 2
R127	A – 2
R130	B – 1
R131	B – 1
R132	B – 1
R133	B – 1
R134	B – 1
R135	B – 1
R136	B – 2
R138	A – 2
R142	A – 2
R143	A – 2
R144	A – 2
R145	A – 2
R146	A – 2
R147	A – 3
R150	A – 1
R503	C – 3
R505	B – 3

SYMBOL NO.	ADDRESS
R506	B – 3
R508	B – 3
R509	B – 3
R510	C – 3
R511	B – 3
R512	B – 4
R513	B – 3
R520	B – 3
R521	B – 3
R527	C – 3
R528	B – 3
R530	B – 3
R532	B – 3
R551	C – 1
R552	C – 2
R553	C – 2
R554	C – 2
R555	C – 2
R556	C – 2
R557	C – 2
R558	C – 2
R559	C – 2
R901	B – 6
R2D2	C – 5
R2D3	B – 5
R2D4	B – 5
R2E1	C – 5
R2E2	B – 5
R2E3	B – 5
R2E5	B – 5
R2E6	B – 5
R2E7	B – 5
R2E8	B – 5
R2F1	B – 5
R2F2	B – 6
R2F3	B – 6
R2F4	B – 5
R2F5	B – 5
R2F6	B – 5
R2F7	B – 5
R2F8	A – 5
R2G0	A – 5
R2G1	A – 5
R2G2	A – 5
R2G3	A – 5
R2G5	A – 5
R2G7	B – 5
R2G8	A – 4
R2H1	B – 4
R2H3	A – 4
R2H4	A – 4
R2H5	B – 4
R2H6	A – 4
R2H7	A – 4
R2J0	A – 4
R2J1	A – 4
R2J2	A – 4
R2J3	A – 4
R2J4	B – 4
R2J5	B – 4

SYMBOL NO.	ADDRESS
R2J6	B – 4
R2J8	A – 5
R2J9	A – 5
R2K1	A – 5
R2K2	A – 3
R2K7	A – 3
R2K8	A – 2
R2M5	B – 3
R2M6	B – 3
R2N4	B – 5
R2N5	B – 4
R2N6	B – 4
R2N8	B – 4
R2N9	A – 3
R2P2	B – 5
R2P3	B – 5
R2P5	B – 5
R2P7	B – 5
R2P9	A – 5
R2R1	B – 5
R2R2	B – 4
R2R4	B – 5
R2R6	B – 6
R2R9	A – 5
R2S3	B – 5
R2S5	B – 5
R2T1	A – 5
R2T2	A – 5
R2T3	A – 5
R2T4	A – 5
R2T5	B – 5
R2T6	A – 4
R2T7	A – 4
R2T8	B – 4
R2T9	A – 5
R2U0	B – 4
R2V0	B – 3
R2V1	B – 3
R3B0	A – 3
R3B1	A – 3
R3B2	A – 3
R3B3	A – 3
R3B8	A – 3
R3X4	A – 4
R3X5	A – 3
R4A0	E – 5
R4A5	D – 5
R4A9	E – 5
R4B0	E – 5
R4B2	E – 5
R4B4	E – 5
R4B5	D – 5
R4B6	E – 5
R4B7	E – 5
R4B8	E – 5
R4B9	D – 5
R4C0	D – 5
R4C1	D – 5
R4C3	D – 5
R4C6	D – 6

SYMBOL NO.	ADDRESS
R4C7	D – 6
R4C8	D – 5
R4C9	D – 5
R4D0	E – 4
R4D1	E – 4
R4D2	E – 5
R4D3	E – 5
R4D4	D – 5
R4D5	E – 5
R4D6	D – 5
R4D7	D – 5
R4D8	E – 5
R4D9	E – 5
R4E0	D – 5
R4E1	E – 5
R4E2	E – 4
R4E3	E – 4
R4E6	E – 5
R4E7	E – 4
R4E9	E – 5
R4F0	D – 5
R4F1	D – 5
R4F2	E – 5
R4S5	D – 6
R4S6	D – 5
R4S7	D – 5
R4S9	D – 5
R4T0	E – 4
R4Z4	E – 5
R5A0	E – 1
R5A1	E – 1
R5A2	E – 1
R5A3	E – 1
R5A5	E – 3
R5A6	E – 3
R5A7	E – 3
R5A8	E – 3
R5A9	E – 3
R5B0	E – 3
R5B1	E – 1
R5B2	E – 2
R5C3	E – 6
R5C4	E – 6
R5C5	E – 6
R5D0	D – 3
R5D2	D – 3
R5D3	D – 3
R5D4	C – 1
R5D6	C – 1
R5D8	C – 2
R5D9	D – 3
R5E0	E – 3
R5E1	D – 1
R5E2	D – 2
R5E3	D – 2
R5E4	D – 1
R5E5	D – 1
R5E6	D – 1
R5E7	D – 1
R5E8	E – 3

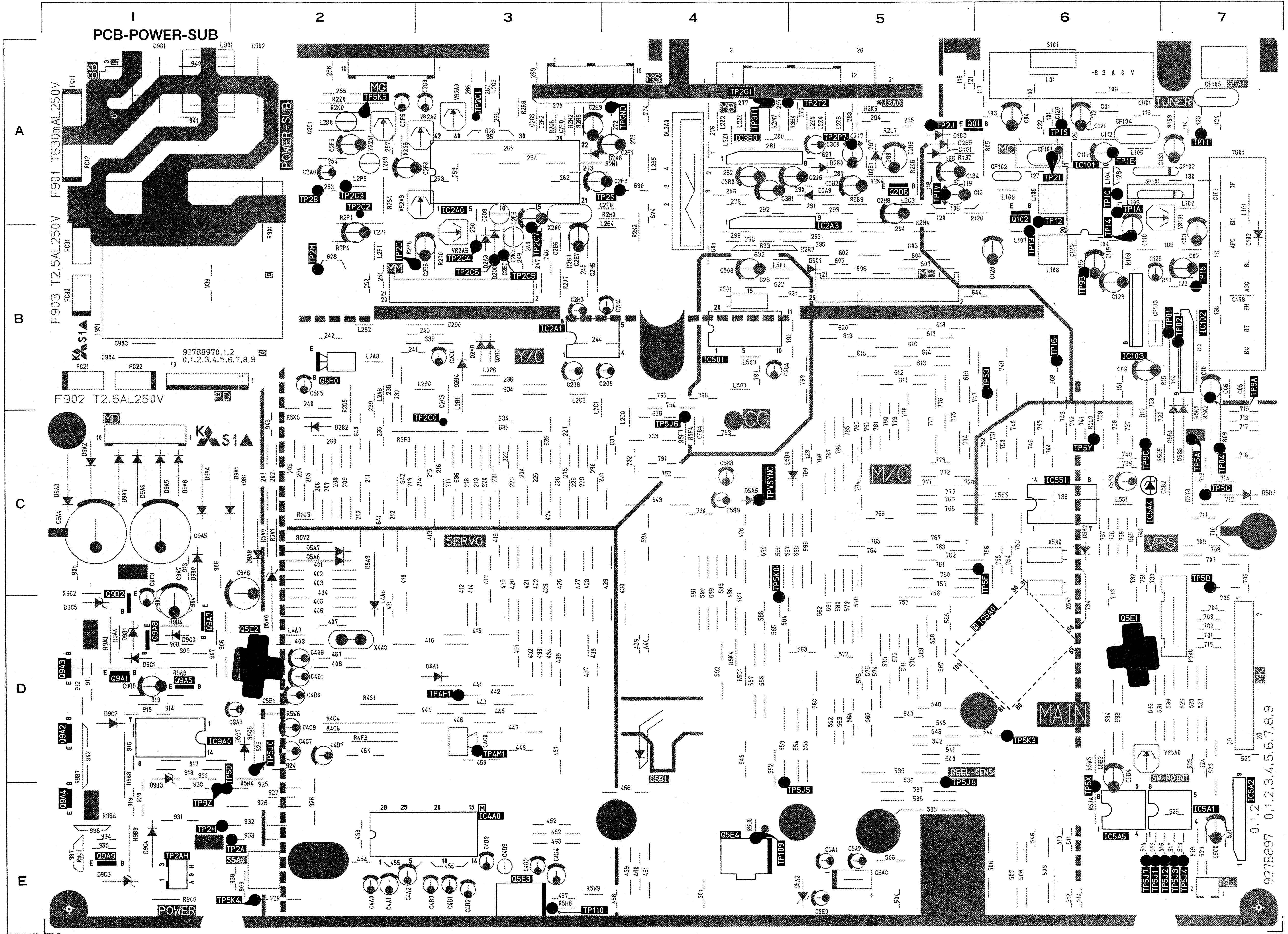
SYMBOL NO.	ADDRESS
R5E9	E – 3
R5F0	E – 3
R5F1	E – 3
R5F5	C – 4
R5F6	C – 3
R5F8	C – 4
R5F9	C – 3
R5G0	C – 3
R5G1	D – 5
R5G4	D – 3
R5G5	D – 2
R5G7	C – 1
R5G9	D – 1
R5H0	E – 1
R5H1	C – 4
R5H2	C – 2
R5H3	D – 2
R5H5	E – 6
R5H7	E – 4
R5H8	D – 2
R5J0	D – 4
R5J1	D – 3
R5J2	C – 5
R5J3	C – 5
R5J5	D – 1
R5J6	C – 2
R5J7	C – 6
R5J8	E – 1
R5K3	E – 1
R5K7	E – 3
R5L1	D – 1
R5L2	D – 1
R5P0	D – 1
R5X0	D – 3
R5X1	C – 2
R5X6	C – 3
R5X7	C – 1
R9A5	D – 6
R9A6	D – 7
R9A7	D – 7
R9A9	D – 7
R9B0	D – 6
R9B3	D – 6
R9B5	D – 7
R9C3	E – 7
RJ101	A – 2
RJ102	B – 1
RJ103	A – 2
RJ104	B – 1
RJ105	B – 1
RJ106	A – 2
RJ107	A – 2
RJ109	B – 1
RJ110	A – 2
RJ201	B – 4
RJ202	B – 3
RJ203	C – 5
RJ204	A – 5
RJ205	B – 4

SYMBOL NO.	ADDRESS
RJ206	A – 3
RJ207	A – 3
RJ208	B – 5
RJ209	A – 5
RJ210	B – 5
RJ211	B – 3
RJ212	A – 3
RJ216	A – 4
RJ220	B – 5
RJ221	A – 4
RJ222	A – 3
RJ227	A – 3
RJ231	A – 4
RJ232	A – 4
RJ233	A – 4
RJ401	D – 5
RJ402	D – 4
RJ403	E – 4
RJ404	D – 5
RJ405	D – 6
RJ501	C – 4
RJ502	C – 3
RJ503	D – 3
RJ504	D – 3
RJ505	C – 3
RJ506	C – 3
RJ507	C – 3
RJ508	D – 3
RJ509	D – 2
RJ510	B – 3
RJ511	E – 1
RJ512	D – 1
RJ513	D – 3
RJ514	D – 1
RJ515	D – 2
RJ516	B – 3
RJ517	E – 2
RJ518	D – 3
RJ519	E – 3
RJ520	E – 3
RJ521	D – 3
RJ522	E – 3
RJ523	E – 3
RJ524	D – 5
RJ525	D – 4
S5A1	A – 1
T901	B – 6
TP01	B – 1
TP02	B – 1
TP04	C – 1
TP11	A – 1
TP12	B – 2
TP13	B – 2
TP14	B – 1
TP15	B – 1
TP16	B – 2
TP53	B – 2

SYMBOL NO.	ADDRESS
TP109	E – 3
TP110	E – 4
TP1A	A – 1
TP1C	A – 1
TP1E	A – 1
TP1S	A – 2
TP1V	A – 2
TP21	A – 2
TP2A	E – 6
TP2B	A – 6
TP2D	B – 5
TP2H	E – 6
TP2J	A – 2
TP2M	B – 6
TP5A	C – 1
TP5B	C – 1
TP5C	C – 1
TP5D	E – 6
TP5F	C – 2
TP5X	E – 1
TP5Y	C – 1
TP6A	A – 5
TP6B	A – 5
TP9A	B – 1
TP9B	B – 2
TP9C	C – 1
TP9Z	E – 6
TP1G1	A – 2
TP1G2	A – 2
TP1G3	B – 1
TP1G4	B – 1
TP2AH	E – 6
TP2C0	C – 5
TP2C1	A – 5
TP2C2	A – 5
TP2C3	A – 5
TP2C4	B – 5
TP2C5	B – 5
TP2C6	B – 5
TP2C7	B – 5
TP2G1	A – 3
TP2G2	A – 3
TP2G3	A – 3
TP2G4	A – 3
TP2G5	A – 5
TP2G6	A – 4
TP2P5	A – 6
TP2P6	A – 3
TP2P7	A – 3
TP2P8	A – 3
TP2T2	A – 3
TP3T1	A – 3
TP3T3	A – 3
TP4C0	E – 5
TP4C1	E – 5
TP4C2	E – 5
TP4D1	E – 5
TP4D2	E – 5
TP4F1	D – 5
TP4G1	E – 6

SYMBOL NO.	ADDRESS
TP4M1	D – 5
TP5J0	D – 6
TP5J1	E – 1
TP5J2	E – 1
TP5J3	E – 1
TP5J4	E – 1
TP5J5	E – 3
TP5J6	C – 4
TP5J7	E – 1
TP5J8	E – 2
TP5J9	D – 2
TP5K0	D – 3
TP5K3	D – 2
TP5K4	E – 6
TP5K5	A – 5
TPGND	A – 4
TPRESET	A – 1
TPVSYNC	C – 3
VR101	B – 1
VR2A0	A – 5
VR2A1	A – 5
VR2A2	A – 5
VR2A3	A – 5
VR2A5	B – 5
VR5A0	D – 1

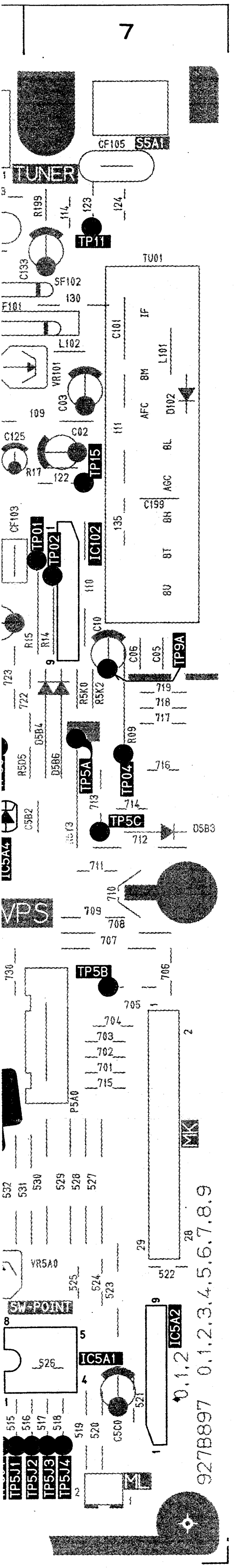
PCB-MAIN〔COMPONENT SIDE〕


1
2
3
4
5
6
7
A
B
C
D
E
PCB-POWER-SUB
POWER-SUB
F901 T630mAL250V
F903 T2.5AL250V
F902 T2.5AL250V
PD
MD
POWER
S1
92786970.1,2
0.1,2,3,4,5,6,7,8,9
MG
MS
MB
MC
TUNER
MM
ME
Y/C
CG
M/C
SERVO
VPS
MAIN
MK
ML
REEL-SENS
SW-POINT
IC2A0
IC2A1
IC3B0
IC2A3
IC501
IC101
IC102
IC103
IC551
IC5A0
IC5A1
IC5A2
IC5A5
IC4A0
IC9A0
927B897 0.1,2,3,4,5,6,7,8,9

PCB-MAIN

PCB-MAIN〔CO

SYMBOL NO.	ADDRESS
CF101	A – 6
CF102	A – 6
CF103	B – 6
CF104	A – 6
CF105	A – 7
CU01	A – 6
D101	A – 5
D102	B – 7
D103	A – 5
D501	B – 5
D2A3	B – 3
D2A6	A – 3
D2A8	B – 3
D2A9	A – 5
D2B0	A – 5
D2B1	A – 5
D2B2	C – 2
D2B3	B – 3
D2B5	A – 5
D2D0	B – 3
D4A1	D – 3
D5A2	E – 5
D5A4	C – 4
D5A7	C – 2
D5A8	C – 2
D5A9	D – 2
D5B1	D – 4
D5B2	C – 6
D5B3	C – 7
D5B4	C – 7
D5B6	C – 7
D5B7	D – 2
D5D0	C – 4
D5V0	C – 2
D9A1	C – 2
D9A2	C – 1
D9A3	C – 1
D9A4	C – 1
D9A5	C – 1
D9A6	C – 1
D9A7	C – 1
D9A8	C – 1
D9A9	C – 2
D9B0	C – 1
D9B1	D – 1
D9B3	E – 1
D9C0	D – 1
D9C1	D – 1
D9C2	D – 1
D9C3	E – 1
D9C4	E – 1
D9C5	D – 1
DL2A0	A – 4
F901	A – 1
F902	B – 1
F903	B – 1


7
TUNER
CF105
S5A1
TP11
TU01
TP15
TP01
TP02
IC102
TP9A
TP5A
TP04
TP5C
VPS
TP5B
MK
SW-POINT
IC5A1
IC5A2
ML
TP5J1
TP5J2
TP5J3
TP5J4
927B897
0.1.2 0.1.2.3.4.5.6.7.8.9

PCB-MAIN 〔COMPONENT SIDE〕

SYMBOL NO.	ADDRESS	SYMBOL NO.	ADDRESS	SYMBOL NO.	ADDRESS	SYMBOL NO.	ADDRESS
CF101	A – 6	FC11	A – 1	L2Z2	A – 4	TP2S	A – 4
CF102	A – 6	FC12	A – 1	L2Z3	A – 5	TP5A	C – 7
CF103	B – 6	FC21	B – 1	L2Z4	A – 5	TP5B	C – 7
CF104	A – 6	FC22	B – 1	L2Z5	A – 5	TP5C	C – 7
CF105	A – 7	FC31	B – 1	L4A7	D – 2	TP5D	E – 1
		FC32	B – 1	L4A8	D – 2	TP5F	C – 5
CU01	A – 6					TP5X	E – 6
		IC101	A – 6	P5A0	D – 7	TP5Y	C – 6
D101	A – 5	IC102	B – 7			TP9A	B – 7
D102	B – 7	IC103	B – 6	Q01	A – 5	TP9B	B – 6
D103	A – 5	IC501	B – 3	Q102	A – 6	TP9C	C – 6
D501	B – 5	IC551	C – 6	Q2D6	A – 5	TP9Z	E – 1
D2A3	B – 3	IC2A0	A – 3	Q5E1	D – 6	TP2AH	E – 1
D2A6	A – 3	IC2A1	B – 3	Q5E2	D – 2	TP2C0	C – 3
D2A8	B – 3	IC2A3	A – 4	Q5E3	E – 3	TP2C1	A – 3
D2A9	A – 5	IC3B0	A – 4	Q5E4	E – 4	TP2C2	A – 2
D2B0	A – 5	IC4A0	E – 2	Q5F0	B – 2	TP2C3	A – 2
D2B1	A – 5	IC5A0	D – 6	Q9A1	D – 1	TP2C4	B – 3
D2B2	C – 2	IC5A1	E – 7	Q9A2	D – 1	TP2C5	B – 3
D2B3	B – 3	IC5A2	E – 7	Q9A3	D – 1	TP2C6	B – 3
D2B5	A – 5	IC5A4	C – 6	Q9A4	E – 1	TP2C7	B – 3
D2D0	B – 3	IC5A5	E – 6	Q9A5	D – 1	TP2G1	A – 4
D4A1	D – 3	IC9A0	D – 1	Q9A7	D – 1	TP2P7	A – 5
D5A2	E – 5			Q9A8	D – 1	TP2T2	A – 4
D5A4	C – 4	J3A0	A – 5	Q9A9	E – 1	TP3T1	A – 4
D5A7	C – 2			Q9B2	D – 1	TP4F1	D – 3
D5A8	C – 2	L01	A – 6			TP4M1	D – 3
D5A9	D – 2	L101	A – 7	S101	A – 6	TP5J0	D – 2
D5B1	D – 4	L102	A – 7	S5A0	E – 2	TP5J1	E – 6
D5B2	C – 6	L103	A – 6	S5A1	A – 7	TP5J2	E – 6
D5B3	C – 7	L104	A – 6			TP5J3	E – 7
D5B4	C – 7	L105	A – 6	SF101	A – 6	TP5J4	E – 7
D5B6	C – 7	L106	A – 6	SF102	A – 6	TP5J5	E – 4
D5B7	D – 2	L107	B – 6			TP5J6	C – 4
D5D0	C – 4	L108	B – 6	T901	B – 1	TP5J7	E – 6
D5V0	C – 2	L109	A – 6			TP5J8	E – 5
D9A1	C – 2	L501	B – 4	TP01	B – 7	TP5K0	D – 4
D9A2	C – 1	L503	B – 4	TP02	B – 7	TP5K3	D – 6
D9A3	C – 1	L507	B – 4	TP04	C – 7	TP5K4	E – 2
D9A4	C – 1	L551	C – 6	TP11	A – 7	TP5K5	A – 2
D9A5	C – 1	L901	A – 1	TP12	A – 6	TPGND	A – 4
D9A6	C – 1	L2A8	B – 2	TP13	B – 6	TPVSYNC	C – 4
D9A7	C – 1	L2A9	B – 2	TP14	B – 6		
D9A8	C – 1	L2B0	B – 3	TP15	B – 7	TU01	B – 7
D9A9	C – 2	L2B1	B – 3	TP16	B – 6		
D9B0	C – 1	L2B2	B – 2	TP21	A – 6	VR101	A – 6
D9B1	D – 1	L2B4	B – 4	TP53	B – 6	VR2A0	A – 3
D9B3	E – 1	L2B5	A – 4	TP109	E – 4	VR2A1	A – 2
D9C0	D – 1	L2B8	A – 2	TP110	E – 3	VR2A2	A – 3
D9C1	D – 1	L2B9	A – 2	TP1A	A – 6	VR2A3	A – 3
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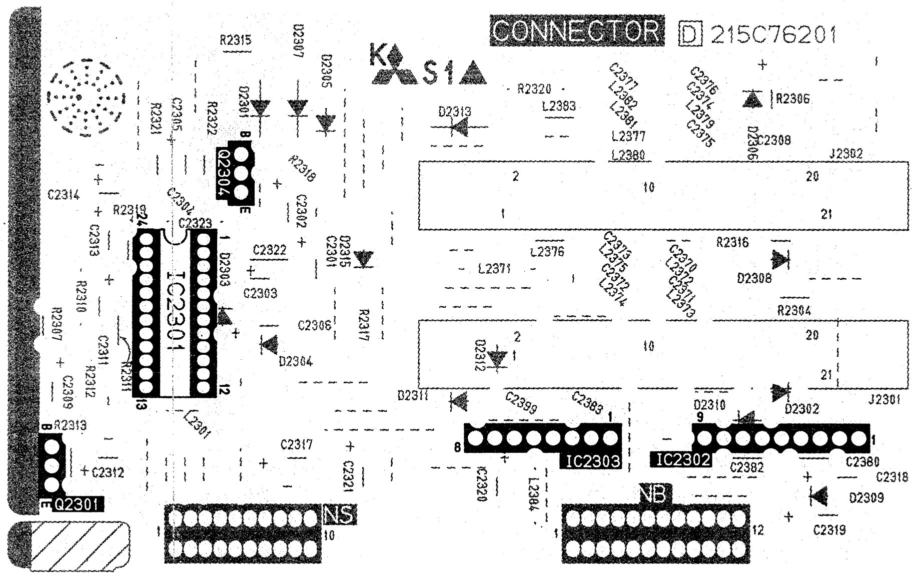
D9C3	E – 1	L2C1	B – 3	TP1E	A – 6	VR5A0	D – 6
D9C4	E – 1	L2C2	B – 3	TP1S	A – 6		
D9C5	D – 1	L2C3	A – 5	TP1V	A – 5	X501	B – 4
		L2G3	A – 3	TP2A	E – 1	X2A0	A – 3
DL2A0	A – 4	L2P1	B – 2	TP2B	A – 2	X4A0	D – 3
		L2P6	B – 3	TP2D	B – 2	X5A0	C – 6
F901	A – 1	L2PS	A – 2	TP2H	E – 1	X5A1	C – 6
F902	B – 1	L2Z0	A – 4	TP2J	A – 5		
F903	B – 1	L2Z1	A – 4	TP2M	B – 2		

PCB-CONNECTOR 〔Except HS-520V(B)〕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IC2301
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IC2303
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D2309
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NS
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